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ECONOMIC AND INDUSTRIAL AFFAIRS

No. 2058

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BULGARIA

TRADE RELATIONS WITH AFRICAN COUNTRIES SURVEYED

Sofia VUNSHNA TURGOVIYA in Bulgarian Nos 7-8, 1980 pp 9-13

[Article by Dimitur V. Khadzhinikolov: "Development of Foreign Trade Relations Between Bulgaria and the Countries in Tropical Africa"]

[Text] The establishment of long-term stable relations with the developing countries is a prime task of our foreign trade both from the viewpoint of Bulgarian national interests and of the active anti-imperialist policy pursued by these countries, aimed at surmounting economic backwardness and dependence inherited from colonialism.

The share of the developing countries in Bulgarian foreign trade has been rising steadily. Whereas it accounted for 2.9 percent in 1960, it rose to 5.6 percent in 1970 and 7.3 percent in 1978. Despite this, considerable unused possibilities remain for expanding foreign trade relations with these countries. A comparison with other European CEMA-member countries shows that developing countries account for 9.1 percent of Hungarian foreign trade and 6.6 percent for Czechoslovak foreign trade, ranging between 5 and 10 percent for most CEMA-member countries. This shows that, to a large extent, this is a common problem and that its solution should be sought both on a bilateral and a multilateral basis within CEMA.

The breakdown of foreign trade with the developing countries, by area, in the 1970s is approximately the same as in the 1960s: The Arab countries account for about 60 percent; South and Southeast Asia, 20 percent; Latin America, 7 percent; and tropical Africa, about 6 percent. The main reasons for this breakdown are Bulgaria's traditional trade relations with Middle Eastern countries, the economic backwardness of tropical African countries, inherited from colonialism, the relative distance, undeveloped communications, and others.

Bulgaria's foreign trade with tropical Africa is focused on several countries which account for over 90 percent of the total.

As shown in Table 1, Bulgaria has relatively greater relations with Nigeria, Angola, Tanzania, Mozambique, and Ethiopia. It is natural for a country such as Bulgaria not to develop its foreign trade on an identical basis with the 46 states found in Africa south of the Sahara. On the other hand, a certain expansion of contacts with the other countries in the area would be useful. Relations are successfully, even though sporadically, developing with some new partners such as Uganda, Zambia and the Ivory Coast. Let us note that Angola and Mozambique are also relatively new partners.

Unquestionably, the attention is focused on countries which assume a leading position in the economic and social development of the continent. In this respect we shall intensify our relations with Nigeria, Angola, Tanzania, Ghana and others. However, the relatively rapidly developing countries in the area include some with which our foreign trade contacts are in their very beginning, such as the Ivory Coast, Senegal, Kenya, Liberia, Gabon and others. Some goods, manufactured on a license basis, could find their place in our imports, along with traditional goods. This would facilitate the access of other Bulgarian goods on their markets. Cooperation may be developed in agriculture, transportation, construction, and others.

The influence of noneconomic factors is a characteristic feature of Bulgaria's foreign trade geographic breakdown in the area. Bulgaria is displaying its solidarity with the struggle waged by the African peoples against neocolonialism and is assisting them in accordance with its possibilities. For this reason we could expect a more extensive development of foreign trade relations with countries such as Angola, Ethiopia, Mozambique, Benin and other socialist oriented countries.

Characteristic of the commodity structure of Bulgarian exports to tropical African countries is the predominance of finished goods--machines, chemicals, consumer goods, food items, medicines, shoes and clothing. Particular attention should be paid to articles such as automobile batteries exported to Angola, Ghana, Nigeria, Ethiopia, and others; electric hoists and gas operated lift trucks (Angola, Nigeria); pumps--to Nigeria and Mozambique; equipment for the construction industry (Tanzania), the textile industry (Nigeria), and the food industry (Senegal, Sudan). Pharmaceuticals are exported in greater quantities to Angola, Mozambique, Gambia, Togo, Ghana, Guinea, Senegal, Dahomey, Nigeria, Liberia, Sierra Leone and Uganda. This frequently occurs as different types of aid.[1] Data from "Vunshna Turgoviya na NRB 1960-1978" [1960-1978 Bulgarian Foreign Trade], Sofia, pp 36-119.

Table 1. Bulgarian Trade With Some Tropical African Countries
(million leva in prices of corresponding years)

	Country	1976	1977	1978
1.	Nigeria	28.9	32.1	36.4
2.	Angola	0.6	20.3	17.2
3.	Tanzania	1.4	6.6	9.4
4.	Ghana	0.1	1.8	2.1
5.	Mozambique	0.1	2.0	0.5
6.	People's Republic of the Congo	1.3	0.8	0.4
7.	Ethiopia	0.2	2.8	0.4
8.	Guinea	1.7	4.8	0.1

Raw material of agricultural and nonagricultural origin such as petroleum, iron ore, rare metals, cocoa, coffee, and others predominate among Bulgaria's imports from tropical Africa. This import structure is determined, above all, by the objective conditions prevailing in tropical African countries whose economy is of a strongly emphasized agrarian-raw material nature and in whose exports one or several items considerably predominate. This is the case of cocoa for Ghana, copper for Zambia, petroleum for Nigeria, and cotton for the Sudan.

An indicator characterizing as agrarian the economy of these countries is the participation of agriculture in the creation of the gross national product and the national income. Depending on the level of development of the economic structure, the share of agriculture, which is predominately unprocessed, in the newly created national income varies from 30 percent for the Ivory Coast to 50-60 percent or more for Mali, Nigeria, Tanzania and other countries in the group of the economically least developed countries.

Despite the great importance of agriculture to the economies of these countries, because of the primitive nature of the cultivation of the land they are unable to insure entirely their populations' nutrition. Hence the great attention which is being paid of late to the reconstruction and modernization of agriculture in the area. At the 10th FAO Conference for African Countries, held in November 1978 in Arusha (Tanzania), a plan was adopted according to which by 1985 agriculture on the continent should meet not 90 percent of its domestic food requirements as is the present case, but 94-95 percent. This called for capital investments totaling \$27.3 billion.[2] This program involves drastic increases in imports of chemical fertilizers, herbicides, agricultural equipment, seeds, and purebred cattle.

The concept of "collective reliance on one's own forces," which, at the present stage of the development of the region's economy is related to a reorientation toward the accelerated development of agriculture, should not be considered separately from the global program for a redistribution of production capacities in industry in favor of the developing countries, including those of tropical Africa. Such structural changes, however, would be largely impossible to implement without increasing the share of finished goods in exports and without the diversification of the latter. That is why the efforts of the tropical African countries are focused precisely on increasing the participation of the processing industry in their exports and eliminating their single-crop nature.

Along with these two factors, which strongly affect the foreign economic ties of the countries under consideration, let us note another one: the geographic reorientation of foreign trade. Characteristic of this trend are the following features: 1) A lowering of the share of leading partners and broadening the circles of correspondents; appearance of significant "new" partners of the region's countries; 2) removal of the former mother countries from their leading position or considerably reducing their share in the trade of the countries south of the Sahara; 3) intensifying integration processes horizontally and vertically (association with the EEC).[3]

As we pointed out, in a number of countries in the area the share of the leading partners is steadily decreasing in favor of new very active partners. The following table illustrates this conclusion.

Table 2. Share of the Leading Three Partners in the Foreign Trade of Some Tropical African Countries in Percent of Their Trade

Country	Imports		Exports	
	1970	1976	1970	1976
1. Nigeria	60	50	66	56
2. Ivory Coast	61	53	60	49
3. Senegal	60	54	67	69
4. Ethiopia	46	37	64	40
5. Tanzania	38	37	26	33

Source: Based on the United Nations Foreign Trade Yearbook, 1977.

The share of the leading partners in the foreign trade of some African countries is increasing as is the case, for example, with Tanzanian exports (Table 2) or Ugandan foreign trade. Here the first three correspondents are the following: Imports--Kenya, Great Britain, and the FRG; exports--United States, Great Britain and Japan which accounted, respectively, for 65 and 85 percent in 1976.[4]

A number of "new" and active partners are being added to the "traditional" partners of the countries in the area, most of them coming from the "small" developed capitalist countries such as Sweden, Norway, Austria, or Switzerland, or else large developing countries such as India and Egypt, and countries which have had relatively high rates of economic development in recent years, such as Singapore, Kuwait, and others. The share of the socialist countries has been rising as well. From 1950 to 1976 trade between the European CEMA-member countries and the tropical African countries has been increasing at the annual average rate of over 11 percent. Despite this, the share of CEMA in the region's foreign trade is consistent neither with the increased possibilities of the socialist countries nor the desire of the African countries to surmount their economic dependence on imperialism.

The integration processes occurring in tropical Africa have a very slight reflection on the intraregional trade and foreign trade relations of these countries for a number of mainly objective reasons. This includes the similar structure of imports and exports, strong dependence of foreign investment and financing sources, poor development of communications, and so on. Intraregional trade in the West African Economic Community, where integration processes are the relatively most developed in Africa accounted in 1976 for no more than about 7 percent of the entire trade of the countries within the community.[5] The aspiration of the African countries to develop a system for "collective reliance on their own forces," however, proves the significance of integration processes in regional economic organizations of tropical African countries may rise considerably.

The association of most of the countries south of the Sahara with the Common Market plays a considerable role in the development of their foreign trade. The 1979 Lome Convention increased the list of goods which the African countries may export to the EEC on a custom-free basis. Even though such preferences are not reciprocal, through industrial "cooperation," foreign investments, and the unpublicized granting of visible and invisible tariff and nontariff preferences, the association with the EEC facilitates the access of Western European goods to the African market.

Such development of economic relations between the EEC and tropical Africa presumes the need for a more persistent policy on the part of the Bulgarian People's Republic and the members of the socialist comity, aimed at achieving the status of most favored nation.

The general processes of the economic development of the area are refracted through the national characteristics of the individual countries in accordance with the direction followed by their socioeconomic development. In order to clarify the specific possibilities for the intensification of foreign trade between Bulgaria and the tropical African countries we must study the conditions of economic development and objectives of the foreign trade activities of the main and more promising foreign trade partners of the Bulgarian People's Republic.

Nigeria

Nigeria is the seventh biggest oil producing country. It has considerable reserves of natural gas, coal, iron ore, nonferrous metal ores, bauxite, asbestos, titanium and other minerals. Raw materials clearly predominate in the country's exports. For example, in 1977 petroleum accounted for over 93 percent of total exports.[6] The import structure is as follows: food, 10 percent; raw materials and semifinished goods for industry, 28.4 percent; fuels, 2.8 percent; machines and equipment, 24.4 percent; transport facilities, 23.5 percent; and consumer goods, 10.9 percent. The more important import commodities are fish (fresh and frozen), wheat, fruits and vegetables, chemicals, pharmaceuticals, cement, ferrous metals and rolled metal goods, textiles, and clothing. The share of passenger cars and electrical equipment is particularly high as it is of equipment for the leather-novelty industry and the textile, petroleum extraction and mining industries.

Thanks to the considerable income from sales of petroleum, owned by the state, Nigeria is substantially increasing its imports of machines and equipment and developing its domestic industrial capacities. Of late the greatest emphasis has been on modernizing agriculture and the infrastructure, and the creation of a national metallurgical complex.

Despite the great increase in trade between Nigeria and the European socialist CEMA-member countries, their position on the Nigerian market is not consistent with their possibilities, due to a number of reasons: The strong positions held by foreign capital,[7] historical traditions, unfamiliarity with the market, and so on. As Prof Dr A. Gromyko, director of the Africa Institute of the USSR Academy of Sciences, a noted Soviet scientist, emphasizes "Possibilities for economic cooperation are still not being fully used."[8] It is noteworthy that Bulgaria is one of the most active CEMA-member countries in developing trade with Nigeria. Between 1972 and 1976 Bulgaria's foreign trade with Nigeria rose by a factor of roughly 7. Yugoslavia and Hungary are among the European socialist countries whose participation in Nigerian foreign trade is growing at the fastest rate. Among the Western countries some new partners such as Norway, Greece and Spain are successfully developing their relations. Within the same period of time their trade with Nigeria has increased over tenfold.

Bearing in mind the structure of Nigerian imports and exports and the main directions followed by the country in its development, as earmarked in the third national economic plan for 1975-1980 (accelerated development of agriculture, including the creation of standard state farms, development of the canning industry and the production of agricultural equipment, chemical fertilizers, and so on, the development of light industry, the creation of a national metallurgical complex, the expansion of geological studies and modernization of the extracting industry, the diversification of exports, the development of the infrastructure and the building of a new capital of the country), a number of trends and ways of Bulgarian-Nigerian foreign trade contacts could be considered promising. They could include trade in agricultural machine building and food industry equipment, and equipment for the light and textile industries. The quantities of chemical fertilizers, rolled ferrous metals, electric motors, intraplant transport equipment, fresh and processed agricultural commodities, and so on, exported by Bulgaria, could be increased considerably.

The Afrocommers and Globfish mixed companies are favorably influencing the development of Bulgarian-Nigerian economic relations. Thanks to Globfish Bulgarian participation has increased in the fish and fish product markets not only of Nigeria but of other African countries as well.

Practical experience indicates that increasing the number of Bulgarian specialists working in Nigeria also leads to bigger Bulgarian-Nigerian trade. The building of the metallurgical combine in Adjaokut, with Soviet help, could increase the number of Bulgarians employed there. This would have a favorable influence on the overall development of Bulgarian-Nigerian economic cooperation. The building of the new capital of the country offers additional possibilities for increasing the number of Bulgarian specialists.

Angola

Following the victory of the national liberation revolution of the Angolan people in 1975 good possibilities appeared for Bulgarian-Angolan economic cooperation.

Angola has rich natural deposits of oil (half the Nigerian amount), diamonds, iron ore, copper, lead, gold, nickel, mercury, and other rare metals. Under the Portuguese colonial system, Angolan exports, consisting of raw materials (four raw materials--oil, diamonds, coffee and iron ore account for 73 percent of total exports) went to the mother country, South Africa and the main capitalist countries, meeting their requirements for some valuable raw materials. Imports were used to develop the extracting industry and the infrastructure, and contributed to the extraction of Angolan national resources. Currently a reorientation process in the field of foreign trade is taking place, related to eliminating the dependence of the country on imperialism and the organization of total national control over natural resources and the struggle against the racist aggressive regimes in South Africa and Namibia.

The development of agriculture in the young country is a promising area for economic cooperation between Bulgaria and Angola. Imports of agricultural equipment are increasing. The Bulgarian enterprise Agrokomplekt is planning the development of vegetable plantations near Luanda on an area of 4,000 hectares. Machines, fertilizers, plant protection chemicals and auxiliary equipment will be imported from Bulgaria. The joint production of some models of agricultural machines and appliances is contemplated as well. The possibility exists to set up mixed companies for the production and marketing of electric motors, forklift trucks and gas-operated lift trucks and other items produced by the machine building industry. The Bulgargeomin DSO [State Economic Trust] has undertaken the construction of a pilot system for the production of 30,000 tons of phosphate meal annually.

Ethiopia

The Ethiopian economy has a clearly expressed agrarian character. This is reflected in its exports 80 percent of which consist of raw agricultural commodities, mainly coffee. Following the adoption of a socialist orientation by the country, everything possible is being done to develop a modern material and technical agricultural base. At the same time, proper attention is paid to the development of industry and the infrastructure.

Currently the emphasis is on the modernization of the light industry--textiles, shoes, and leather items.

Despite the fast growth of foreign trade between Ethiopia and the socialist countries, they remain weak and are focused mainly on trade in coffee and food products. This is largely due to the difficult economic situation of the country inherited from the monarchy, the export structure, which is of a one-crop nature, and the export traditions.

The successful economic development of the country and its gradual inclusion in the socialist international division of labor are factors which could increase possibilities for expanding trade between Ethiopia and the socialist countries, including Bulgaria. For the time being, in addition to importing coffee from Ethiopia, textiles, leather goods, some nonferrous metals and artisan products could be of interest as well.

Mozambique

In 1976 the country imported goods worth $417 million while its exports totaled $201 million. The structure of Mozambican imports is approximately as follows: food and beverages, 10 percent; industrial raw materials, 15 percent; fuels, 11 percent; machines and equipment, 32 percent; transport facilities, 26 percent; and consumer goods, 6 percent. Raw and processed agricultural commodities predominate in the country's exports. The main items here are peanuts, sugar, fruits, cotton, copra, timber and coal.

The main items of Bulgarian exports to Mozambique are canned fish, wine and, above all, water pumps. In 1978 Bulgaria exported 2,000 electric water pumps to Mozambique.

The expansion of foreign trade relations between Bulgaria and the countries of tropical Africa requires the solution of some problems. One of them is the establishment of direct contacts with companies in the developing countries. The use of middlemen who are, most frequently, the representatives of big Western companies, is due, on the one hand, to the insufficient knowledge of the market and, on the other, to some difficulties in the financing of Bulgarian exports, i.e., the granting of credits to the partners in the area. Despite the difficulties, the Bulgarian foreign trade enterprises are strengthening their contacts with national and state enterprises in these countries.

Another important problem is that of properly combining short-term with long-term planning of foreign trade relations. Bearing in mind the difficulties experienced by some of these countries in connection with their balance of trade and the desire of the African countries to diversify exports, along with importing raw materials from them something could be done to promote imports of some finished goods. Trade development programs could include some goods produced on licenses as well as those developed as the result of industrial cooperation with these countries. In this respect promising sectors include the timber processing, leather, pharmaceutical, and other industries. Two facts should be borne in mind: 1) the adamant desire of the developing countries, including those of tropical Africa, considerably to expand their exports of finished goods; 2) the contemporary trends in the international division of labor related to a considerable redistribution of capacities in these and other industrial sectors.

As a number of economists have noted, the process of interweaving trade relations with operations related to government credits, economic and scientific and technical cooperation, and direct industrial cooperation is intensifying. The comprehensive nature of foreign economic relations is expressed in the joint development of ore deposits, the extraction and processing of timber (Mozambique, Guinea, Ivory Coast), the creation of mixed enterprises for international trucking, the organization of joint fishing activities (Nigeria, Angola, Mozambique), the building of model agricultural enterprises (Mozambique, Tanzania), and others.

The assignment of Bulgarian specialists and the training of local cadres by Bulgarian specialists is of great importance in the development of economic cooperation with the countries in that area. Good possibilities exist for increasing Bulgarian participation in the development of the region's agriculture, implementation of design and construction operations, mining and geological surveys, and road construction.

Contacts at different levels have a beneficial impact on the development of cooperation with tropical African countries. The visits which the Bulgarian party and government delegation, headed by Comrade Todor Zhivkov, paid to Nigeria, Angola, Mozambique and Ethiopia in 1978 was particularly important. As was noted at the meeting of the BCP Central Committee Politburo and the State Council and Council of Ministers of the Bulgarian People's Republic, at which the visit was discussed, this was an important manifestation of the solidarity of the members of the socialist comity with the struggle waged by the young African peoples for strengthening their national independence and promoting their social and economic progress.

FOOTNOTES

1. Data taken from "Vunshna Turgoviya na NRB 1960-1978" [Bulgarian Foreign Trade for 1960-1978], Sofia, pp 36-119.

2. MEMO, No 8, 1979, p 27.

3. In economics horizontal integration is integration processes among countries with a similar socioeconomic development; vertical integration means integration between developed and developing countries.

4. "Africa South of the Sahara," Europa Publications LTD, London, 1979, p 1042.

5. UNCTAD, "Foreign Trade Manual," Geneva, 1979, p 54.

6. Based on the United Nations Foreign Trade Yearbook.

7. In 1973 foreign investments in Nigeria totaled $2.1 billion--more than in any other parts in the area together. BIKI, Appendix No 3, 1979, p 69.

8. A. Gromyko, "Nigeria in the International Arena," AZIYA I AFRIKA SEGODNYA, No 3, 1979, p 19.

9. Based on United Nations Foreign Trade Statistical Yearbook, 1977, pp 668-670.

9003
CSO: 2200

PRACTICAL WAY TO SAVE LIQUID FUEL FOR HEATING SUGGESTED

Sofia ZEMEDELSKO ZNAME in Bulgarian 23 Sep 80 p 2

[Article by Tsvetan Purenski: "Petroleum, Electric Power or...Small Steam Boilers?"]

[Text] What would be easier and more practical than living in one's house in town or country without central steam heat, pouring every morning two buckets of coal into the furnace of the small steam boiler in the basement and have even heat throughout the day in all rooms!

However, it is not merely a question of the ease with which heating could be provided with a small steam boiler, even though this is quite important. The problem lies, above all, in the saving of liquid fuels and electric power whose prices have immeasurably risen in recent years on the international market. In Vratsa Okrug alone at present over 30,000 kerosene stoves are being used in private homes. Every year over 10,000 tons of kerosene are used for household heating. Multiplying these approximate figures by the number of okrugs throughout the country we would reach quantities which could fill up a riverbed the size of the Iskur. All this could be saved and used by other economic sectors should the individual houses have small steam boilers using solid fuel.

Having realized the advantages of such heating, many people in town and country are looking for such steam boilers. They look but do not find and, failing to find, seek... experts, whether self-taught or with a diploma. Few people know that in our country small steam boilers are already being produced. For the past 18 months this assignment has been assumed by the Racho Kovacha DPP [State Production Enterprise] in Gabrovo.

I telephoned Ivan Bechev, head of the enterprise's marketing department:

"It is true that for some time we have been producing small steam boilers meeting the requirements of single family houses of no more than three floors. They are based on our own design which has already passed the tests for three separate sizes. The most practical for small or medium-sized houses are steam boilers with 2.8 square meters of heating area developing a capacity of 19,000 calories per hour. For bigger two- and three-story buildings and smaller offices, more powerful steam boilers generating 45,000 and 69,000 calories per hour are produced. All three sizes use solid fuel and coal outlays per day do not exceed two bucketfuls. Currently our enterprise has an annual production capacity for 1,500 small steam boilers. However, we are encountering exceptional difficulties in finding iron castings and some types of steel sheets...."

Without discussing now the difficulties of the Racho Kovacha DPP in procuring materials, let us point out a few other curious features of this production. Usually, steam boilers are installed in the basement or in a small shaft in the courtyard, below the level of the radiators, while an expansion container is placed on the roof (the ceiling); heat exchange water moves along the pipes and the radiators and does not have to be under pressure. The water volume of the first and second models are 60 and 125 liters while coal expenditures range from 20 to 40 kg daily. With one charging the boiler operates 7 hours 30 minutes.

Why is it that small steam boilers are still unavailable on the market?...

Veselin Dimitrov, deputy director of the Vratsa Wholesale Trade Okrug Enterprise:

"So far we have not been offered for sale small steam boilers neither in contracting nor in writing. I believe that we could undertake an obligation in this respect. As to the radiators which are also necessary for this purpose, they are not an item we produce."

Yortan Bratanov, director of the Combustion and Construction Materials Okrug Enterprise in Vratsa:

"We have been repeatedly asked to sell such boilers and it was suggested to us to submit a request. However, we are still not confident of the possibility to sell them, due to the lack of radiators on the market."

As we may see, along with this restraint, in both statements the question is raised of the radiators which so far have not been available to private individuals. Furthermore, another question arises of equal significance: Who will undertake to assemble and service the small steam boilers and the related installations? It is true that Vratsa has the Assemblies Enterprise of the Construction and Installation Combine whose collective has undertaken the obligation to install steam, water, electrical, air conditioning and ventilation systems. However, it does this only in new housing blocks with central heating, communal service buildings and industrial construction. No services are provided to private individuals. Panel and cast iron radiators received from

Strazhitsa Village, Veliko Turnovo Okrug or from the G. Dimitrov Plant in Burgas are used only for public or big residential buildings and cannot be sold to private individuals. What then?...

"People are seeking small steam boilers and radiators driven by need," said Engineer Slavcho Zlatkov, director of the Promishlena Energetika Economic Enterprise, which was recently created precisely with a view to promoting conservation of fuels and materials. "However, no one can easily deal as a private individual with this problem of acquiring materials and installing and maintaining small steam boilers and systems. In order to make this work orderly from the very beginning, I believe that a specific performing enterprise must be found. Decree No 23 of the Council of Ministers, dated 11 May 1979, mentions the organization of a subscription service. Even though the collective of our enterprise is engaged in the repair of steam boilers and thermoelectric power plants, we could provide such services in private homes as well."

In the past decade liquid fuels have become a strategic problem and our country is experiencing its effect. The small steam heating boilers for separate houses or floors, using solid fuel, would facilitate the situation to a certain extent. In order to achieve this sooner, we must as of now resolve problems related to the production, sales, installation, and servicing of steam boilers and systems. Providing steam heat this way should be considered a significant social gain which will bring the villages even closer to the cities.

5003
CSO: 2200

LOSSES IN AGRICULTURE CAUSED BY EROSION

Sofia KOOPERATIVNO SELO in Bulgarian 19 Sep 80 p 2

[Article by Dr Neycho Onchev, senior science associate at N. Pushkarov Institute of Soil Science and Crop Programming, Sofia: "Easy to Waste, Hard to Harvest--More on the National Erosion-Control Program--Many Questions Await Solution"]

> [Text] Without minimizing the part played in erosion control by technical engineering and forest melioration, it is known that without the agricultural technology of erosion control arable lands cannot be protected against the destructive effect of water and wind. Moreover, agricultural technology also creates conditions for maximum accumulation and long-term retention of rain water in the arable stratum. Obviously, such agricultural technology is needed most of all on eroded lands in order to raise and maintain their fertility.

The unsatisfactory results from the considerable funds appropriated every year for erosion control in our country are due mainly to the limited agricultural technology which does not measure up to requirements in this area. This results in huge soil losses. About 130 million tons of soil out of the total agricultural area are carried away on average per year by reason of water-induced sheet erosion. And this means a loss of about 130,000 tons of grain annually. If all this continues, losses in the next 10 years will average 700,000 tons of grain per year. We are not referring here to the losses which our agriculture sustains annually from lands already eroded, whose fertility has dwindled greatly. As a result of improper use last year, some soils on sloping terrains are in such condition that their effective use is limited under the present system of farming. Excluding these from the total tillable area must not be regarded as the soundest decision. From abandoned lands alone the country has been deprived of about 10 million tons of grain in the past 20 years.

The scientific studies of the National Long-Term Erosion-Control Program are the basis for the further application of erosion-control agricultural technology. For all agroindustrial complexes the program indicates suitable technologies that will limit the destructive effect of water and wind.

Progress in this direction is favored by the fact that the envisaged activities are within the competence of the agricultural specialists and are increasingly in line with the capabilities of the technical equipment of our agriculture. They are, above all, measures requiring only that the generally accepted methods of applying agricultural technology that are incompatible with soil-protection requirements should be changed.

For all lands in the total arable area which are subject to water erosion (lands having a terrain slope of more than 1 percent), these boil down to the following:

--Basic soil tillage, preplant tillage, tillage during growing season, application of fertilizer by ground equipment, planting and crop harvesting must be performed in the direction of the contours with slope deviation not exceeding 1-2 percent for soils of light mechanical composition and up to 3-4 percent for soils of heavy mechanical composition. Thus, by this measure alone water erosion can be reduced from 40 to 50 percent on most arable lands. But to achieve a good result, buffer strips or channel terraces shortening the length of the slope must be built on all lands with sloping terrains.

--Deep tillage must be initiated on flat territories, moving gradually to croplands with greater slopes. Tillage methods are subject to the following requirements: the greater the slope of the terrain, the narrower the beds must be in order to form more of the channels and ridges that play a significant water-retention and erosion-control role in contour cultivation; instead of the usual deep tillage, furrow-and-ridge tillage must be employed. This is done by removing the moldboard of one of the plow bodies; shallow soils with a light mechanical composition and lands with predominantly highly eroded soils are tilled with moldboardless plows or by subsurface cultivators in order to save the post-harvesting plant residues as a means of controlling water and wind erosion.

--In the case of croplands subject to active erosion, reduced tillage, including zero-tillage planting, is to be preferred, the aim being to save more plant residues on the surface.

--When row crops are raised on land subject to water and wind erosion, the elimination of tillage during the growing season through the use of herbicides should be practiced in cases where enough post-harvesting plant residues have been saved. In other cases tillage during the growing season is to be preferred, with simultaneous formation of furrows between the rows to hold back the runoff.

--On lands with a slope of more than 1 percent that are occupied by crops with a compact surface, immediately after planting the runoff-drainage furrows, familiar in our agricultural practice, must be dug, with longitudinal slope not exceeding 1-2 percent for soils of light mechanical composition or 3-4 percent for soils of heavy mechanical composition.

Wherever tobacco is raised as a single crop (and especially in the case of irrigated areas), as well as in the case of fruit orchards, a catch-crop of rye for fodder (winter peas) must be put in so as to conserve the soil from erosion and as a source of green fodder.

In regions subject to wind erosion the danger can be avoided altogether by means of agricultural technology if the following measures are practiced:

--First and foremost, tillage and planting must be carried on in a direction perpendicular to the direction of the prevailing winds.

--Priority must be given to tillage that increases the roughness of the soil surface (such as furrow-and-ridge tillage) or increases and holds the quantity of post-harvesting plant residues till the end of May.

--On the most threatened croplands, strip rotation of crops in a direction perpendicular to the direction of the prevailing dust-carrying winds must be introduced.

--On croplands of sugar beets and newly planted alfalfa, windbreak rows of cornstalks or rye must be provided, planted in September of the year before in strips (of 3-4 rows each), at a distance apart equal to the width of the seeder with which the crop is planted.

When we talk about the necessity of erosion-control agricultural technology, we must emphasize also certain unsolved problems. First and foremost, the obvious need for tractors to operate on more markedly sloping terrain and for reversible plows has not been met. Nor are the imports of subsurface cultivators, harrows and seeders for planting in untilled soil sufficient. Nor has the production of an implement for making runoff-retaining furrows, halted in our country more than 10 years ago, been reestablished despite the great advantage of this measure. Without the procurement or production of suitable grain combines for sloping terrains there will be no possibility of organizing highly effective production of crops with a compact surface, which crops, to a maximum extent, protect soil against erosion on sloping terrains.

A deficiency in the training of the specialists and machine operators employed in agriculture has still not been made good. Even now they are not taking a course on soil erosion and control, for which reason instances are not rare where the tremendous damage done by erosion makes no impression on the immediate organizers and performing personnel.

6474
CSO: 2200

EDITORIAL CALLS FOR GATHERING OF CROPS, REDUCING LOSSES

Sofia KOOPERATIVNO SELO in Bulgarian 18 Sep 80 p 1

[Editorial: "Countryside and City Shoulder to Shoulder in a Great Battle"]

[Text] For days in a row now, nimble pickers have been active in the vegetable gardens and in the golden-leafed tobacco. Harvesting machines have invaded the corn and sunflower fields on an ever wider front. The corn is beginning to ripen, the soybean fields are starting to turn yellow, large grapes fill the vineyards. For agricultural workers the decisive days have arrived--days of great responsibility, of loss-free harvesting and fullest utilization of everything our land has yielded in order to fulfill the agricultural plan for 1980 and for the Seventh Five-Year Plan.

Appreciating that at the present moment the most important and crucial task of the party and people is harvesting and making full use of the crops, for its fulfillment the BCP Central Committee calls for mobilization of the forces of the entire party, of the Bulgarian National Agrarian Union, the Fatherland Front, the Bulgarian Trade Unions, the Dimitrov Communist Youth Union, all the country's labor and material resources. The working class, office workers, intellectuals, school-children and students, pensioners, all strata of the population must, with utmost energy, join with the agricultural workers in harvesting and utilizing the crops.

Field work so far shows that the farmers in many agroindustrial complexes have made good preparation for this great and crucial task. At the same time, the situation is alarming in some okrugs, agroindustrial complexes and processing enterprises where work is still not proceeding at the necessary pace. Less output than targeted on the daily schedule is being harvested from the field; enterprises' farm equipment and capacity are still not being fully utilized; considerable amounts of vegetables and fruits are spoiling. And the delay in maturation of the harvest and the danger of early frost make it imperative to move up target dates and start working on a wide front. One cannot help but be disturbed, for example, by the fact that this year in Mikhaylovgrad, Vidin and Vratsa okrugs and, to a certain extent, in Plovdiv too, the necessary measures have not been taken to use combines in tomato-picking. Also alarming are the signs at some complexes of spillage and waste of sugar beets as they are harvested and hauled away, as well as the failure to provide--on time and in sufficient quantity--transportation, spare parts etc. And this is happening now, when working conditions are exceptionally favorable, but what would happen later when the rain is pouring down? These and other warning signals show that measures must be taken without delay to tighten up organization and discipline. A situation must be created of strict exactions and uncompromising intolerance of weaknesses; the quality of work must be decisively improved.

Even the most modest observations show that spillage during corn harvesting every year amounts to 40-50 kg of grain per decare. The situation is not much different with sunflowers and soybeans. Considerable quantities of cornstalks, soybean straw, sugar-beet leaves and tops, and sunflower cakes are wasted too, instead of being fully used for cattle feed. Agriculture now has considerably more and better machinery, as well as improved technologies for gathering and making the fullest use of plants "from root to tip."

The tasks that farm workers have to perform this autumn are many and complex. The basic and decisive condition for successful work, however, is that every complex and every enterprise of the food industry should set up the organization for multishift operation with its entire machinery and that live labor and working time should be used most effectively. Socialist competition must be launched among labor collectives on a wide scale. Advanced experience must be applied on a mass scale. "The experience of front-rankers and pacemakers," Comrade Todor Zhivkov points out, "must become the norm of work and action for the masses."

Gathering in the crops is a nationwide task, a concern not only of agricultural workers, but also of all citizens of the country. That is why now that the husbandmen of the land have been roused to action in the great offensive to gather in the crops, not a single enterprise and not a single labor collective must be left without a precisely defined and fulfilled pledge to agriculture. For, to set up an exemplary organization for highly efficient use of the entire machinery, for loss-free harvesting of the crops, for the processing and sale of output, as well as for on-time and high-standard planting of autumn crops, we need scrupulous maintenance of field machinery and punctual delivery to agricultural and processing enterprises of spare parts, components and assemblies, as well as packaging and other materials. There must be scrupulous concern for the living conditions of the machine operators, manual laborers, schoolchildren and students, and office workers who will lend a helping hand to the agricultural workers.

The hot autumn has come. The pre-congress enthusiasm of the labor collectives and the decision of the Political Bureau on nationwide mobilization for timely harvesting and full utilization of the crops have roused young and old to action. In the great battle to gather in the crops, countryside and city stand shoulder to shoulder.

6474
CSO: 2200

BULGARIA

ORGANIZATION OF OPERATIONS ON BULGARIAN FERRY BOATS

Varna KORABOSTROENE KORABOPLAVANE in Bulgarian Jun, Jul 80

[Article by Anna Encheva, Panayot Bobev, Atanas Andreev and Ventsislav Momchilov: "Organization of the Work of the Crews of the Bulgarian 'Geroite na Odesa' Class Ferryboats"]

[Jun 80, pp 5-6]

[Text] 1. Characteristics of the Round Trip and of the Technical Servicing of the Ferryboats

The importance of the Varna-Il'ichevsk Ferryboat Line is well known. The ferryboats servicing this line have the biggest railroad car capacity in the world. Their main technical parameters are the following:

Maximum length	185.40 meters
Maximum width	26.00 meters
Design draft	6.50 meters
Deadweight	12,160 tons

Fully loaded, the boat can hold 108 four-axle cars or 193 truck trailers of the ZIL-130 model.

The maximum continuous power generated by each of the two main engines is 8,800 horsepower at 227 rpm. The speed attained in tests of maximum continuous capacity of the main engines is 19 knots. The ferryboat is of the A2 class in terms of machine section automation as per the specification of the USSR Ship Registry.

These are modern and highly automated boats designed for intensive exploitation. The organization of the work of their crews is of prime importance from the economic and social viewpoints. That is why the Water Transport Institute in Varna has paid particular attention to timely work in this area.

The basic aspects of the methodical approach adopted by the Water Transport Institute in developing contemporary forms of organization of the work of the crews are the following: determining the characteristic features of the line using the specific type of boats; the quantitative and qualitative study of the necessary labor outlays for the overall running of the ship; the most adequate breakdown of such labor expenditures between operating personnel aboard and ashore; efficient distribution of the available manpower of the crew among the various activities for insuring high labor productivity; defining a suitable working and resting schedule with a view to avoiding navigation safety risks or endangering the work capability and health of crew members. The solution of such problems on a contemporary scientific level also requires the use of the results of labor-physiological studies conducted by the Transport Medical Institute in Sofia with members of crews under specific working conditions. It is almost always necessary to formulate alternatives for the organization of the work aboard ship. A comparative analysis among such variants is indicative in the selection of the optimum variant for specific work conditions.

The article by St. Ivanov "Technology of Transportation by Ferryboat," published in issue No 1 for 1979 of this source describes the basic characteristics of the organization and technology of ferryboat haulage between Varna and Il'ichevsk.

Starting with 1 April 1979 a work schedule requiring a 72-hour round trip was applied. The characteristics of the trip, based on statistical operational data, were the following:

Coasting	29:00 hours
Pilotage and maneuvers	7:00 hours
Loading and unloading operations	20:30 hours
Technological delays in loading and unloading operations and takeoff	5:00 hours
Total	61:30 hours

Since the schedule stipulates 41 hours for the crossing and 31 hours for idling in the berth, a 5 hour reserve in crossing and a 5 hour 30 minute reserve for moorage at both ends exists.

Computations and studies were conducted to determine the characteristics of the line with a 60-hour round trip schedule. The schedule was adopted as of 1980. Its characteristics are the following:

Coasting	29:00 hours
Pilotage and maneuvers	7:00 hours
Loading and unloading operations	20:30 hours
Technological delays in loading and unloading operations and takeoff and idling for other reasons, totaling	3:30 hours
In other words: crossings	36:00 hours
Mooring	24:00 hours
Total	60:00 hours

We must bear in mind that the duration of the crossing, loading and unloading operations, and technological delays in loading and unloading operations and takeoff are based on assessments and averages of the gathered operational data. Usually they are shorter than the indicated figures which include a certain amount of spare time.

The 60-hour round trip faces the organization of the railroad transportation, navigation in the Varna channels, and all coastal services of the ferryboat system and, not least, work aboard the ferryboats, with strict requirements. The high level of technical readiness of the ferryboats is strictly mandatory.

The 72-hour and the 60-hour round trip have already been achieved. For this purpose the Water Transport Institute developed four alternatives for the organization of the work of the crews--two per round trip length. The first calls for completing loading and unloading operations and fastening and unfastening the freight cars by the crew; the second calls for the performance of this work by a coastal brigade.

The necessary labor outlays for ferryboat operations are subjected to quite precise computations, for the round trips have a specific duration and characteristics. The same applies to the breakdown of the worktime of the members of the crew for performing the various activities.

The necessary labor outlays for the technical servicing of the ferryboats between repairs are established through documents on the organization of continuous technical services, as shown in Table 1.

Table 1

Parts of the boat	Planned labor outlays for technical servicing of a ferryboat in man/days over a 2-year period	
	72-hour round trip	60-hour round trip
Machine section	51 812	55 034
Deck section	24 611	26 051
Electrical wiring and automation	16 580	16 520
Electrical radio navigation systems	1 147	1 147
Radio systems	1 478	1 478
Total for the boat	95 328	100 230

The following model for the operational-repair cycle has been suggested on the basis of the specific operational conditions and repair-preventive operations as stipulated in the documents:

- Plant repairs every two years; a minor 30-35 day repair is made on the third year of the commissioning, and a 60-65 day repair is made on the fifth year for the purpose of restoring the boat's class;

- The boat is withdrawn from sailing for 9 to 10 days for cleaning the main engines, cleaning and painting the deck, and other operations which require withdrawing the boat from work at the end of years during which no planned repairs are stipulated;

- Once every three months the boat is docked for the duration of one trip for so-called "preventive" work which involves technical servicing which the crews and the coastal technical service bases are unable to provide when the boat is sailing or docked.

With this model the average length of the operational period of the ferryboats total 328 days per year or 335.5 days per year with the first 2-year operational repair cycle. In the 72-hour round trips over a 2-year operational-repair cycle it totals 218, compared with 262 for the 60-hour round trips.

[Jul 80, pp 6-8]

[Text] 2. Required Labor Outlays for the Overall Exploitation of Ferryboats and Crew Variants

A basic schedule for the work breakdown of the crew members for various activities, within a single round trip, has been drafted for each one of the four variants of the labor organization aboard ship under the following conditions: working the stipulated amount of time on the basis of a 12-hour workday, carrying out all necessary activities related to the regular running of the ship, and foresight of substantiated shortage of work time for technical servicing, distributed among the various coastal services.

Meeting the regulated amount of work time by the crew members in a 12-hour workday aboard ship involves the following working and resting schedule: alternating periods of work aboard ship with equal amounts of free time ashore. There are two crews per ferryboat. This is based on the intensive exploitation of the ferryboats and the need for a great deal of nighttime work. Rest ashore is better than on the ship. The great social advantages of this work and leisure time system are known.

Currently the crews alternate each 15 days. The Transport Medical Institute in Sofia conducted labor-physiological studies in August 1979 on the basis of a 72-hour round trip and loading and unloading operations and fastening and unfastening the freight cars by the crew. It was concluded that under the conditions of the study cases of fatigue at the end of the 15-day work period make the existing working schedule acceptable from the labor-physiological viewpoint, and that 15 days ashore insure the full rest of all crew members. These conclusions do not apply to working conditions in a 60-hour round trip. This requires further studies. Possibly, they may result in the changing of crews at shorter intervals.

Table 2 shows the computed necessary labor outlays for the crews operating a ferryboat in each of the four variants of labor organization aboard ship.

Table 2

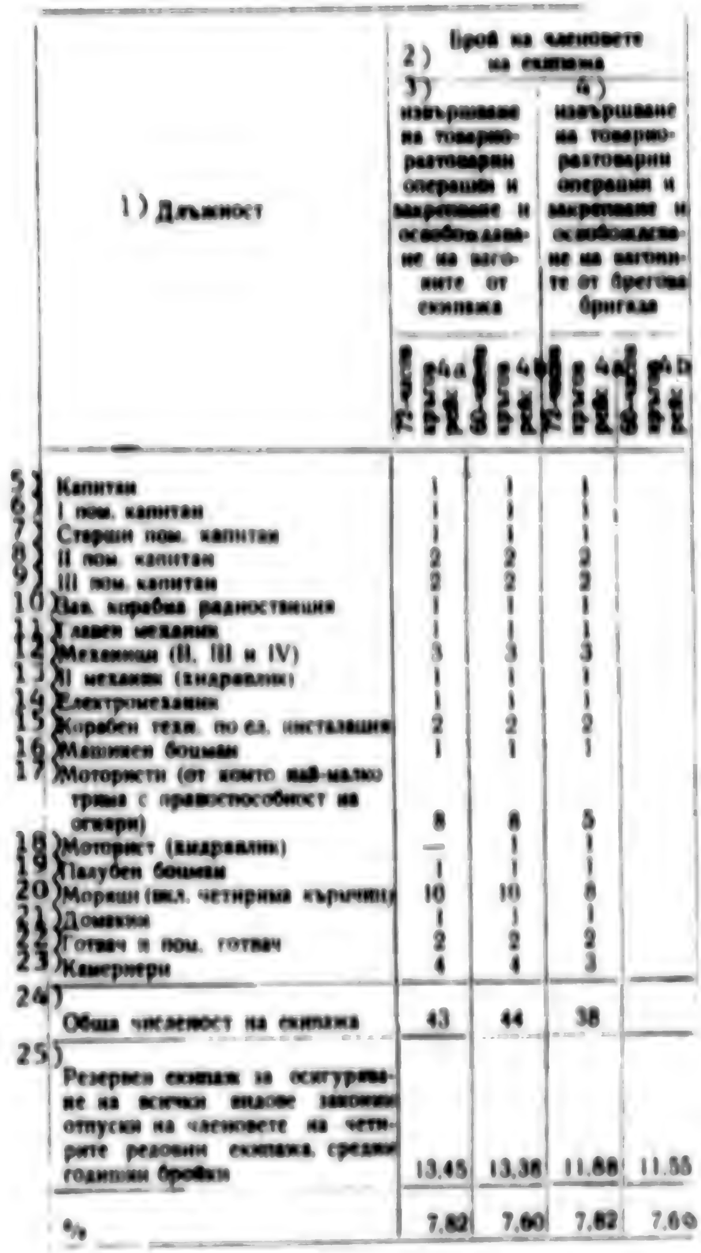
Crew labor outlays	Loading-unloading operations and fastening and unfastening freight cars by the crew		Loading and unloading operations and fastening and unfastening freight cars by a coastal brigade	
	72-hour round trip	60-hour round trip	72-hour round trip	60-hour round trip
Round trip, man/hours	1 460	1 245	1 270	1 060
Two-year interrepair period, man/hours/2 years	318 280	326 190	276 860	277 720
Available working time for technical servicing of the ship in operation in man/hours/2 years	64 900	65 440	72 736	73 393
Shortage of work done for technical servicing of the ship in operation in man/hours/2 years	32 335	34 790	22 592	26 937
Percent of the working time needed for technical servicing	33.9	34.7	23.07	26.9

Three variants of ship crews, as shown in Table 3, were deemed necessary on the basis of the quantitative and qualitative study of the required labor outlays for the operation of a ferryboat in the four variants of labor organization aboard ship.

Permanent floating brigades are contemplated to cover a considerable percentage of the working time shortage of the crew to provide technical servicing in the period between repairs as shown in Table 4.

Particular attention has been paid in drawing up the basic schedules for the breakdown of the working time of crew members among the various activities within a round trip to the creation of conditions for high labor productivity aboard ship and for insuring possibilities to rest between shifts and other operations.

Table 3.



1) Длъжност	2) Брой на членовете на екипажа			
	3) извършване на товаро-разтоварни операции и закрепване и освобождаване на вагоните от екипажа		4) извършване на товаро-разтоварни операции и закрепване и освобождаване на вагоните от бреговата бригада	
	4a	4b	4a	4b
5) Капитан	1	1	1	
6) I пом. капитан	1	1	1	
7) Старши пом. капитан	1	1	1	
8) II пом. капитан	2	2	2	
9) III пом. капитан	2	2	2	
10) Зав. корабна радиостанция	1	1	1	
11) Главен механик	1	1	1	
12) Механици (II, III и IV)	3	3	3	
13) II механик (хидравлик)	1	1	1	
14) Електромеханик	1	1	1	
15) Корабен техн. по ел. инсталации	2	2	2	
16) Машинен боцман	1	1	1	
17) Мотористи (от които най-малко трима с правоспособност на огняри)	8	8	5	
18) Моторист (хидравлик)	—	1	1	
19) Палубен боцман	1	1	1	
20) Моряци (вкл. четирима кърмчии)	10	10	8	
21) Домакин	1	1	1	
22) Готвач и пом. готвач	2	2	2	
23) Камериери	4	4	3	
24) Обща численост на екипажа	43	44	38	
25) Резервен екипаж за осигуряване на всички видове законни отпуски на членовете на четирите редовни екипажа, средногодишни бройки	13.45	13.38	11.88	11.55
%	7.82	7.60	7.82	7.60

Key:

1. Position
2. Number of crewmen
3. Loading and unloading operations and fastening and unfastening freight cars by the crew
4. Loading and unloading operations and fastening and unfastening freight cars by a coastal brigade

4a. 72-hour round trip
4b. 60-hour round trip
5. Captain
6. First Officer
7. Senior First Officer
8. Second Officer
9. Third Officer
10. Head of Ship Radio Station
11. Chief Mechanic
12. Mechanic (II, III, and IV)

[Key to Table 3, continued]

13. Second Mechanic (hydraulics)
14. Electrician
15. Ship technician in charge of the electric system
16. Machine Bo'sun
17. Engineers (of which at least three boiler men)
18. Engineer (hydraulics)
19. Deck Bo'sun
20. Seamen (including four helmsmen)
21. Purser
22. Cook and Assistant Cook
23. Stewards
24. Total crew
25. Reserve crew filling in for the members of the four regular crews who are on leave, annual average

Table 4

Indicator	Loading and unloading operations and fastening and unfastening freight cars by the crew		Loading and unloading Operations and fastening and unfastening freight cars by the coastal brigade	
	72-hour round trip	60-hour round trip	72-hour round trip	60-hour round trip
Size of the permanent sailing brigade man/ferryboat	5	6	5	5
Part of the shortage of working time for technical servicing of the ship covered by the sailing brigade in man/hours/2 years	17 000	20 400	17 000	17 000
Percent	52.57	58.64	75.25	63.11

The relative study of the four variants of the organization of the work aboard ship indicates the following:

In a 60-hour round trip the overall average annual labor outlays of the crews operating one ferryboat are 2.4 percent higher compared with the 72-hour round trip with loading and unloading operations and fastening and unfastening freight cars by the crew and by 0.23 percent when a coastal brigade is in charge of loading and unloading operations and fastening and unfastening freight cars.

A comparison between the labor outlays of the crews in loading and unloading operations in a 72-hour round trip and a 60-hour round trip in terms of loading and unloading operations and fastening and unfastening freight cars by the crew indicates that in the 60-hour round trip they are 16.6

percent lower. The information is that even though the number of trips is increased, in the 60-hour schedule loading and unloading operations are far more intensive. Time reserves for idling for various reasons, existing in the 72-hour round trip, keep in a state of readiness the brigades in charge of such activities. Their overall time is longer even though their labor intensiveness is lower. The 60-hour round trip requires greater tension and higher labor productivity aboard ship compared with the 72-hour round trip. Since 60 is not divisible by 24 the psychophysiological stress of the crew rises also because of the lack of regular working and resting hours in terms of the hours of the day within the framework of a round trip. All this requires that greater attention be paid in the 60-hour schedule to the breakdown of the working time of the crew-members for various activities and insuring the necessary level of work capability through a suitable resting system. In this connection the variant of assigning to coastal brigades the loading and unloading operations and the fastening and unfastening of the freight cars offers clear advantages.

Assigning loading and unloading operations and fastening and unfastening of freight cars to a coastal brigade, regardless of whether the round trip takes 72 or 60 hours, would make it possible to reduce the size of the crew by 5 to 6 people while increasing the amount of time available for technical servicing during the operational shift, increasing labor productivity for technical services as a result of the frequent splitting of the working time among activities of different nature, and improvements in passenger transportation conditions. All in all, under this variant the operational expenditures of the two ferryboats are lowered by 158,600 leva per year (132,600 leva per year from a reduction in the size of the crew and 36,000 leva from a lowering of expenditures for the technical servicing of shifts in operation).

The annual cost of coastal brigades engaged in loading and unloading operations and fastening and unfastening freight cars is lesser by 20,400 leva than the reduced operational outlays aboard ship. The computations are based on wage and price data of September 1979.

The members of the coastal brigades in charge of loading and unloading operations and fastening and unfastening freight cars have better conditions for restoring their forces and resting ashore immediately after the working time compared with the members of the crews engaged in such activities with the other alternative.

The aspiration in the development of these alternatives in the organization of the work aboard Bulgarian ferryboats servicing the Varna-Il'ichevsk line was for each variant to be optimized in terms of its circumstances in order to be effectively applicable should such working conditions be applied to the line.

The coordinated study of labor outlays for the operation of the ferryboats as transport systems and labor outlays for their technical servicing and the increased labor productivity aboard ship, with optimum working and resting conditions for crew members and coastal brigades for loading and unloading operations and fastening and unfastening freight cars are important aspects in the methodical approach to be followed in the implementation of this task.

5003
CSO: 2200

SPECIFICATIONS OF NEW DUAL PURPOSE SHIP

Varna KORABOSTROENE KORABOPLAVANE in Bulgarian Jul 80 p 5

[Report: "Launching the First 3,000 Ton Sea-River Ship"]

[Text] On 21 May 1980 the first of the series of 3,000 ton sea-river ships was launched at the Iv. Dimitrov Shipbuilding and Ship Repair Combine in Ruse.

The ship is of the KM ★ L^4[1] 1SP class according to the USSR Ship Register. It is built for navigation in internal waterways and agitated sea areas. The design of the ship was adapted to the building conditions of the shipbuilding combine in Ruse and the use of Bulgarian materials was formulated by the Shipbuilding Institute, Ruse Branch.

The new enclosed building slips of the combine, equipped with 100-ton cranes, make work possible under difficult weather conditions at full capacity in shop conditions.

Main Features

Longest width	114.06 meters
Structural length (according to GVL)	110.84 meters
Width	13.26 meters
Width, computed	13.00 meters
Board height	5.50 meters
Draft:	
in fresh water	3.75 meters
in sea water	3.68 meters
Height (without masts and equipment, removed)	15.85 meters
Full capacity	2,484 registered tons
Dead weight	3,135 tons
Power system	2 x 660 hp
Speed at 3.65 meters draft	10.6 knots
Refueling	each 10 days

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BULGARIA

SHIP RECONSTRUCTED INTO PURIFICATION STATION

Varna KORABOSTROENE KORABOPLAVANE in Bulgarian Jul 80 pp 2-4

[Article by Kosta Kostov: "Reconstruction of the Anton Ivanov MT Into a Floating Purification Station"]

[Text] The study of the dynamics of the growth of maritime haulage of liquid freight and the presumed spilling of harmful substances into the world's oceans in the period between 1960 and 1985 (see Table 1) indicate a trend toward a steadily growing pollution which strangles the ocean and causes tremendous damages to its flora and fauna. In the period between 1974 and 1978 alone over 300 accidents involving tankers were recorded. All this has caused the maritime countries, whose economies are closely linked with maritime resources, to join efforts in the struggle against pollution with petroleum and petroleum products which predominate among the liquid freight hauled by sea.

So far, under the guidance of the Intergovernmental Maritime Consultation Organization, IMCO, the maritime countries have adopted a number of international conventions on the protection of the world's oceans from pollution with substances harmful to maritime flora and fauna.

Following the example and in the spirit of the work of the IMCO a number of maritime countries have concluded additional regional agreements on preventing the pollution of specific maritime areas with petroleum products such as, for example, the 1974 and 1976 agreements for the Baltic and Mediterranean seas. The Baltic Agreement became effective in 1977 while the one on the Mediterranean was signed on 16 February 1977. As a now recognized maritime country Bulgaria as well is not ignoring this important problem. Resolution No 208 of the Council of Ministers, dated 18 May 1970, and the Ukase of the State Council of the Bulgarian People's Republic No 1293 of 26 August 1976 with which the country joined the 1954 International Convention, with supplements and amendments of 1962 and 1969, proved the great attention which we are paying to this problem.

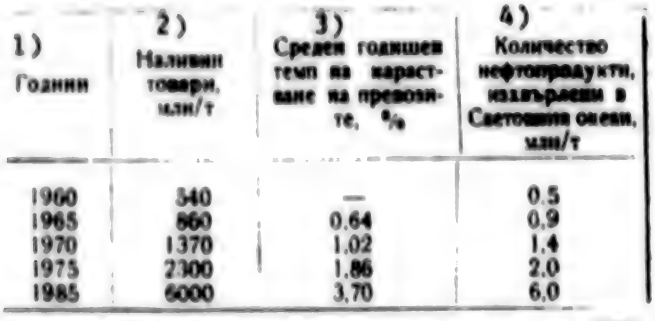
The pollution of our coastal waters with harmful substances is caused by pollutants located directly within the water area of the ports and the coastal zone, by polluting agents in the high seas. These pollutants are the main culprits for the poor condition of the flora and fauna in the

Black Sea. According to estimates supplied by the Water Transport Institute in Varna, the spilling of petroleum and petroleum products in the Black Sea Basin totaled 10,000 tons in 1975 and is expected to reach 32,000 tons in 1985.

Global experience indicates that coastal and floating purification stations are among the most effective technical systems which could either prevent or reduce sea water pollution.

A number of countries are using floating purification stations (PPS) because of their basic advantage of making possible the processing of ships in an operative order and with the lowest possible time loss while the ships are docked or undergoing loading and unloading operation at the pier. At the same time, they have the fullest possible set of technological facilities for all types of mechanized flushing of ship tanks and adequate capacity for the separated petroleum products received from another ship, a reliable system for the treatment of the waste water polluted with petroleum, and good working and living conditions for the specialized station crew.

Table 1*



1) Години	2) Наливни товари, млн/т	3) Среден годишен темп на нарастване на превозите, %	4) Количество нефтопродукти, изхвърлени в Световния океан, млн/т
1960	340	—	0.5
1965	860	0.64	0,9
1970	1370	1.02	1,4
1975	2300	1,86	2.0
1985	6000	3,70	6,0

* Марынов О. Г. Нефтяное загрязнение и жизнь моря, 1973.

Key:
1. Year
2. Liquid freight, million tons
3. Average annual growth rate of haulage, percent
4. Quantity of petroleum products discharged into the world's oceans, million tons

* Marynov, O. G., "Neftyanoye Zheryazneniye i Zhizn' Morya" [Oil Pollution and Sea Life], 1973

The choice of the type of purification system depends on the specific operational conditions of the commercial fleets of the individual maritime countries. Meeting the specific conditions of a given port for which the floating purification station is built and the requirements of effective international agreements and conventions make floating stations a necessary and economically expedient equipment.

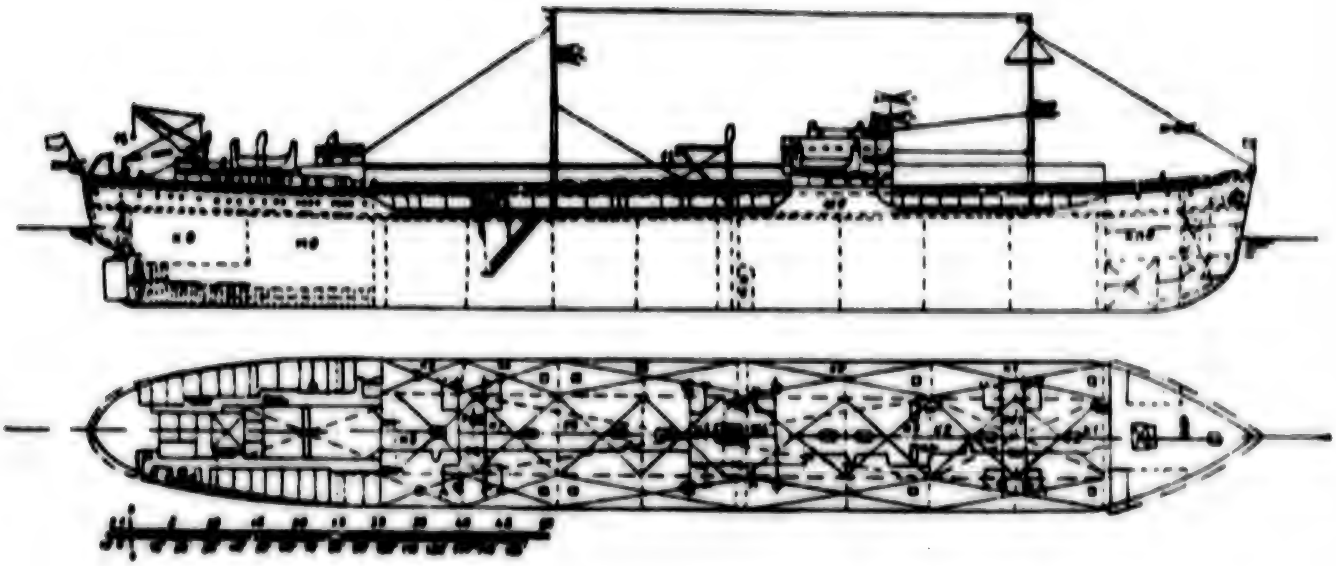


Fig 1

The moth-balled Pioner Motor Ship was reconstructed as the first Bulgarian floating purification station for work at the Burgas port. This was a manifestation of the proper attitude displayed by the Water Transport SO [Economic Trust] toward the problems of protecting the purity of Black Sea waters and a creative application of the concept of the functional and technological equipping of purification systems in accordance with the specific conditions under which ships operate in the Burgas port. The station suffered a major breakdown and the country faced, once again, the problem of creating a purification system on the basis of the already acquired practical experience, taking the structural and operational shortcomings of the first station into consideration.

The decision of the Water Transport SO, the Varna Okrug Council of Scientific and Technical Unions was instructed to prepare the complete technical work documentation for the reconstruction of the Anton Ivanov MT, scrapped in 1978, into a floating purification station.

According to the technical assignment, the floating purification station must meet the requirements of the 1954 international convention with its amendments and supplements and perform the following basic functions:

- Receive and separate ship waste water polluted by petroleum or petroleum products meeting the stipulated standard;

- Assist tankers in their flushing process prior to repairs or change in freight;

- Aerate the washed tanks to the level meeting the requirements of a "gas-free" certificate;

- Collect the separated petroleum products from the polluted waters and hold unpolluted the petroleum products of ships undergoing repairs;

- Use for its own power generation system the separated petroleum products and sell the surplus to the respective state organizations;

- If expedient or necessary to participate in the sea operations for the cleaning of major oil spills.

After its reconstruction, the Anton Ivanov MT will have the technology and appearance as indicated on Fig. 1.

Essentially, the reconstruction includes the following operations:

- Main tanks 1 and 2 with a total capacity of 2,341 cubic meters will become a system for the storing, additional separation, holding, and utilization of separated petroleum products;

- Central tanks 3, 4, 5, 6 and 7, with a total capacity of 5,867 cubic meters will become a separation system;

- Central tank 8 and auxiliary tanks 4--port and starboard--with a total capacity of 2,107 cubic meters will become a system for flushing with hot water the tanks of ships of all models;

- Auxiliary tanks 1, 2, and 3--port and starboard--with a total capacity of 5,760 cubic meters will become a system for ballasting the station with possibility for connection to the separation system;

- Auxiliary tanks 5--port and starboard--with a total capacity of 800 cubic meters will become clean fuel containers;

- The machine section of the tanker will have additional mechanisms according to the technological requirements of the station and the structural changes and additions of the boiler system;

- Changes will be made in the pumping sections of the tanker;

- The stern superstructure is entirely changed with a view to providing suitable working and resting conditions for the specialized station crew;

- Centralized posts are established, three on each side for work with the hoses and for station control;

- Improvements will be made in the navigational system of the ship with a view to updating and improving intraship control communications;

- The tanker's electric power system will be additionally saturated with new generators and possibilities for the use of the existing generators within a single power system;

- In order to facilitate the work of the crew with the hoses taking on polluted water and controlling the work of the separation system, the existing one-ton loading systems on each side of the station will be retained. They will be used for delivery to the processed the hoses, ejectors, membrane pumps for the suction of the polluted water from the tankers in the double bottom and for other heavy operations. The control of the bottom valves and the cutoff valves of the system will be located on the main deck;

- In order to improve the work of the separation system the bottoms of the containers will have a heat insulation cover consisting of polyvinyl chloride porous material and bitumen;

- In order to avoid a static electric charge in receiving water polluted by petroleum products, the siphoning pipes will have a special location. Deflecting protective systems will be installed on the receiving pipe leading to central tank No 3 in order to avoid the dynamic shock of the incoming water and insure its atomizing with filtration through a petroleum layer;

- Air hoists convenient for work and shifting will be installed to assist in the difficult process of cleaning and extracting bottom sedimentation from the tanks in the course of the technical servicing and repairs of the station;

- A special furnace will be equipped for the storage and fastening of hoses of all sides;

- The station tanks will have modern ventilation facilities.

Following the completion of the repairs of the Anton Ivanov tanker and its reconstruction it will be able to carry out its functions of a floating purification station in accordance with the recommendations and standards of the 1954 International Convention, signed by Bulgaria in 1976. It will meet the requirements of the Bulgarian Ship Register for a tanker with a limited sailing range.

Following the enactment of the 1973 International Convention and the acceptance of Bulgaria as a party to this convention, the possibility has been contemplated, should it become expedient, to improve the quality of the work on the separation system of the station.

The economic effectiveness of the Anton Ivanov floating purification station will be its assistance in the flushing processes of tankers and the shortening of their nonproduction idling. It will also come from the flushing of the sides and bottoms of oil and fuel tanks of dry freight ships, the sale to state organizations or private individuals of separated petroleum products suitable for use and the utilization for its own power system of some of the separated petroleum products and the earnings based on set state prices from taking the polluted water of Bulgarian and foreign ships.

According to preliminary estimates, and taking into consideration annual maintenance, supply, and repair expenditures of the station and the cost of the crew, its economic effectiveness is estimated at 200,000 leva annual profit. However, the social effect from the preservation of the purity of sea waters in incalculable.

The creation and proper operation of the Anton Ivanov floating purification station by the Water Transportation SO is among the important links within the overall expanded governmental program for the gradual and total solution of the problem of the preservation and reproduction of the environment in our country.

5003
CSO: 2200

USE OF PRICES TO PRESS FOR CONSERVATION, QUALITY VIEWED

Prague HOSPODARSKE NOVINY in Czech 29 Aug 80 p 3

[Article by Engineer Vlastimil Boura, ScC, first deputy minister, Federal Price Bureau: "Prices: Pressure on Conservation and Quality--On Improvement of the Planned Management System"]

[Text] "The CPCZ Central Committee Presidium and the CSSR Government stress the extraordinary importance of responsible introduction of gradual rationalization of wholesale prices which must reflect more adequately efficiency and quality of production as well as the situation in world markets. The prices of imported goods must affect more than ever before the management of economic production units and enterprises, particularly conservation of raw materials, materials and power, imported machinery and equipment." This objective has been outlined in the decision by the CPCZ Central Committee Presidium and by the CSSR Government declaring the price area to be an integral part of the targets on which the Set of Measures for Improving the Planned Management System of National Economy After 1980 is focusing. Basic principles of price policies, among them especially the enforcement of uniform prices and systematic consolidation of state price control, will be further maintained and strengthened so as to comply with this directive.

In the price area the point of departure will be provided by the applied forms and methods of price controls which proved satisfactory during the Sixth Five-Year Plan, or, as the case may be, those which are now undergoing tests within the framework of the comprehensive experiment. In several directions, however, it will be necessary to proceed even further. Such methods of work and price control policy must be enforced as will contribute more effectively to the solution of material problems in our economy. Primarily the following issues are at stake:

--To assess the efficiency of the expanded social work on all levels of management more objectively and from a longer-range perspective, and thus, to create preconditions for increasingly demanding evaluation of merits earned by organizations for the results they achieved;

--To stimulate an efficient innovation process, especially progressive directions of the economic development and structural changes, in harmony with the goals of the economic development and with the objectives of the national economic plan;

--To react more flexibly to the changing economic conditions, and above all, to external economic factors;

--To strengthen the price discipline and thus, to help enhance the responsibility of organizations and of the leading economic workers for the achievement of societywide interests and objectives and for giving them priority.

Further rationalization of wholesale prices and the conditions for their implementation represent problems that are far from simple. The price level is under considerable, steady pressure forcing it to rise further as a result of the constantly accelerating growth of foreign prices as well as of domestic factors.

Rationalization of Wholesale Prices

At present the prices of imported and domestic sources of fuels and power and of certain other raw materials are being adjusted. Contrary to the previous practice, where every major adjustment of wholesale prices was reflected in the tasks of the plan, the current adjustment follows a nontraditional method. Wholesale prices of sources of fuels and power have been gradually increasing every year since 1979, namely, during the 1980-1985 period by 2 percent annually. Thus, the wholesale prices of solid and liquid fuels valid in 1978 will be up by 19 percent in the target year: of electric power and heat, by 15 percent; and of gas fuels, by 12 percent. But this increase will not affect the adjustment of wholesale prices in subsequent processes of production. Thus, consumers are put under economic pressure to conserve fuels and power, and to make a better use of them in the production of goods.

In addition, as of 1 January 1981 a one-time adjustment will raise the wholesale prices of the sources of fuels and power and of certain other raw materials on the average by 45 percent. The effect of this rise will be reflected in wholesale prices in subsequent processes of production, however, only in those branches of production where it could lead an excessive decline of profitability, or to a deficit in production. Here, too, it is desirable to soften the impact of higher wholesale prices for fuels, power and raw materials to an advantageous extent by lower costs and by above-average profitability of the processing sectors, and to reduce to a minimum the growth of the price level, particularly in finished goods manufacture. Nevertheless, this adjustment will affect almost two-thirds of national economic production. In the area of finished goods, where on principle wholesale prices are not adjusted, manufacturers may compensate for the price increase in the preceding stages of production only by better exploitation of fuels, power and materials, and by achieving the parameters of high technological standard and quality of their products reflected in price-setting and price stimulation of improved goods.

The gradual increase and the one-time adjustment will raise the level of wholesale prices of primary fuel and power sources and of other raw materials (including the adjustment of wholesale prices of precious metals in 1980) on the average by 56 percent. In 1985, for example, the price of power coal will be up by 40 percent, of coking coal by 43 percent, of gaseous fuels by 58 percent, and of crude oil by 65 percent.

Higher wholesale prices of sources of fuels and power and of certain other raw materials will promote a marked rise in the price level in metallurgy, petrochemical industry, transportation, and in those sectors of other branches of our basic industry that consume considerable amounts of power and materials. New wholesale prices for those areas have already been set and approved; their price level will be up by 24 percent.

In the one-time adjustment of wholesale prices the center of gravity is being transposed into the area of the processing industry, where a relatively more moderate rise of the price level is envisaged. It is presumed that the overall level of wholesale prices in our industry and construction will rise in 1982 on the average by 7 to 9 percent.

Price Stimulation

The comprehensive approach to the concept of price stimulation, applied in the course of this five-year plan, is demonstrated by continuously improving efficiency; it is based on the correlation of price stimulation with the funds of material incentives of organizations, on an appropriate adjustment of the planning methodology, and also on corresponding regulations for the area of product-rating. Manufacturing organizations are showing increasingly more interest in price stimulation, as evident from the 250-percent rise in the volume of preferential pricing in 1979 (up to Kcs 2,126,900,000) as compared with 1977: the current extent of penalty price reduction (Kcs 260.6 million in 1979), however, still falls short of fully expressing obsolescence and shortcomings in the quality of certain products.

Price stimulation exerts a more powerful effect in organizations conducting the comprehensive experiment in the management of efficiency and quality, because its regulations give priority in an essentially more effective way to accelerated introduction of new technology and better quality, which represent the principal factors in raising efficiency of production. To be sure, the emphasis is put primarily on long-range planning, on the qualitative aspect of the replacement process, on the application of the indicator of profitability of operating assets, and on the value-added indicator whose fulfillment reflects all changes with substantially greater intensity in the costs base as well as in the price standard. For that reason, the annual plan must consistently make provisions for this circumstance.

A more intensive effect of price stimulation under the new conditions appears in the structure of the value-added indicator in the industry, where the material component of production, which is excluded, amounts to roughly 67 percent, so that the value-added indicator amounts to 33 percent of the current volume of goods.

This enhances to a considerable extent the effect of the value-added indicator on price stimulation and especially on the implementation of all measures leading to reduction in operating costs and to higher profits. Thus, for instance, if the costs are cut by 2 points, this indicator will reflect it by profits raised also by 2 points, which, however, boosts the value-added indicator by 6 percent (2:0.33), so that the intensity of the effect is increased threefold. Naturally, its effect is equally powerful in the opposite direction, i.e., in raising the costs. The abovementioned effect will become more conspicuous in price stimulation and penalty price reduction, namely, in direct proportion to the higher rates applied there.

In this conjunction we are fully aware that precisely in this area the value-added indicator will pose particularly high demands. We must consider that enterprises may try to achieve the target in an easier way, by enforcing higher prices without corresponding improvement of the quality parameters of their goods, by improper speculations with changes in the line of goods, etc. This must not happen! Discipline in planning and price-setting, and discipline in supplier-consumer relations, must be imposed, and any failure to maintain it must be penalized more than ever before.

At the same time, for a more productive effect of price stimulation, the new conditions demand, on the one hand, that necessary preconditions be created for its further development, and on the other hand, that more scrupulous criteria of its implementation be unconditionally enforced. The measures mentioned below are being planned for that purpose.

Rating of Technical Standard

The basic precondition for the implementation of preferential pricing or penalty price reduction is the rating of the technological standard or quality of products. In order to expand the extent of price stimulation, more goods must be rated for quality and for their technological standard. Quality rating, which is decisive, concerns above all enforcement of all new products scheduled for obligatory rating as soon as in the preproduction stages, which will enable preferential pricing of all new products included in the category of first quality. In order to expand substantially the volume of products subject to rating, it is particularly important to establish a system of ministerial rating (ministerial testing laboratories) pursuant to general principles approved by the Bureau for Standardization and Measurements in force as of 1 January 1981.

The number of products to be rated for their technological standard will be increased by mandatory rating of all new products manufactured on the basis of the state plans for technological development (insofar as they are not subject to mandatory quality rating), whereby this procedure will be tested for feasibility and efficiency also of new products manufactured on the basis of ministerial and branch plans for technological development. Changes aiming particularly at a more consistent practical application of penalties for technologically outdated products will be made in methods rating the technological obsolescence of products by means of deadlines for their technical economic service life as well as by individual ratings.

All measures planned for the methods of preferential pricing and penalty price reduction are motivated by stricter requirements of quality and efficiency of improvement programs. Stricter evidence of the efficiency standard will be required for new products for that purpose--while maintaining the current maximum level of preferential pricing and penalty price reductions. Preferential pricing will not apply without proof of the economic contribution of the new product in technologically advanced and top quality means of production, or in products that are designated for use in production and not for export. As for the technologically advanced and high-quality products for export, the standard of preferential pricing, or as the case may be, of penalty price reduction, will depend on the average price attained, or realistically attainable, in foreign markets. In case of products for domestic consumption as well as for export, the achieved export efficiency will determine preferential pricing and penalty price reduction.

Contrary to the previous method, the level of preferential pricing of individual products will be assessed for its stability. If the efficiency of a product changes conspicuously, for example, if its export efficiency deteriorates, the level of preferential pricing will be proportionally reduced or completely canceled. Preferential pricing and penalty price reduction will be implemented by means of surcharges and deductions on basic prices.

For a closer link between the domestic and foreign prices the new program of price stimulation to be introduced will depend solely on the level of prices obtained in foreign markets. It will be applied in selected branches with a high share of production for export. Price stimulation will be applied bilaterally, in other words, as preferential pricing as well as penalty price reduction. The determining criterion for its application will be based only on prices obtained in foreign markets. In those cases rating of products will not be mandatory, because, as a rule, foreign prices represent a sufficiently objective and demanding criterion, expressing in general also the technological standard and quality of products. Thus, domestic and foreign prices will be gradually brought closer together throughout the planning and price-setting processes.

Central Price Control of Imports

Domestic and foreign prices must be unconditionally linked not only with the final output of the replacement process, but also with its input by means of central price control of imports, which guarantees that imported materials which are vitally important for production will be uniformly rated on the basis of actual costs of their import, or of production. By the same token, this prevents fluctuation of foreign prices in the markets of the capitalist states from being reflected arbitrarily in our processing industry. Furthermore, price control of imports provides the essential preconditions for planned projection of actual changes in terms of value in world economy into our domestic price system, most of all, into the wholesale prices of basic material inputs.

At this time the central price control system for imports for 1981, which is based on partially narrowed nomenclature of current groups I and II, has already been resolved. The two groups form a new group I, and the remaining items will be transferred into a new group II (previously group III). In view of the fact that uniform wholesale prices have been set for these transferred items, the principle of participation of assets belonging to enterprises and of the state budget in covering the differences between the wholesale and retail prices will apply for the transferred items to the extent which will be stipulated in the state plan. Thus, the obligation to set uniform wholesale prices for these items in costing calculations will continue.

As for financial and price relations, the OZO [Supply and Marketing Department] will invoice domestic consumers for imported items at set wholesale prices (in specific cases, at current retail prices) in such a way that the difference between the stipulated wholesale price and the current retail price will be balanced by the OZO (in special cases by the initial domestic consumer) with the state budget. In justified cases therefore the new control group I retains the method currently applied in the former group II, where the differences between the retail and wholesale prices are balanced on the level of the initial domestic consumer and of the state budget.

Domestic consumers will be invoiced by the OZO for the remaining imports included in the new group II of central price controls at current retail prices. In those instances where the obligation was stipulated to calculate the prices of imports according to a uniform wholesale price (in general, items excluded from the current groups I and II), the domestic consumer will account for the difference between the prices from his capital reserves and the state budget.

In certain cases involving imports of a cooperative type, thus far included in control group II, prices will be set within the framework of the above-mentioned one-time wholesale price adjustment as of 1 January 1982; in case of proven import efficiency, a special standard for balancing the difference in prices will apply to other specialized and cooperative imports.

These adjustments in price control of imports, particularly in the nomenclature of group I, will be analyzed during 1981; further measures will be adopted for 1982 and for the following years of the Seven Five-Year Plan, especially to achieve the desirable and economically justified tapering of the scope of controlled items.

Adjustments in central price control of imports are planned and implemented deliberately; at the same time, however, their objective, which is constantly scrutinized, will be fulfilled gradually on the basis of exerting purposefully higher pressures in order to achieve economical consumption. It is necessary, however, to taper off the scope of controlled items gradually, because only thus realistic relations between the wholesale and retail prices may be maintained, and the undesirable redistributions undercutting the effect of the planned objective may be eliminated.

If the price system is to serve as an effective tool of the planned management system, it must continuously and systematically approach the development of socially vital costs. In the past period this has been valid particularly in the development of the costs of procurement of material inputs in the process of replacement, i.e., purchase of fuels, power and raw materials, particularly the imported ones. If we aim, when implementing the above-mentioned measures, at a more flexible process of updating prices and price relations and at a closer linkage with the economic criteria of international division of labor, it does not express automation, arbitrariness or one-sidedness. It calls for highly responsible, expert approaches to the solution of these problems in every area of the planned management system.

9004
CSO: 2400

KEY CONSTRUCTION PROJECTS PROGRESS REVIEWED

Prague HOSPODARSKE NOVINY in Slovak 19 Sep 80 p 2

[Article by Jozef Hudec, CPCZ Central Committee deputy department chief]

[Text] During the current scientific and technical revolution the rate of progress of economic development of society depends on a reliable energy base and the ability to meet the steadily rising demand for power. Therefore, our capital policy aims primarily at developing a reliable and stable fuel and energy base. Other capital construction programs such as those of the nuclear, petrochemical and other industries are spinoffs of this power base which in turn is tied to the construction of capacities for the production of building materials and the vast social comprehensive housing construction program concentrated in key industrial areas.

The plan provides for an investment of Kcs 724.7 billion for the continued development of our economy in the Sixth Five-Year Plan. In 4 1/2 years projects valued at Kcs 632.5 billion were completed which leaves a comparatively high volume of work worth in excess of Kcs 5 billion to be completed in each of the 6 remaining months of the five-year plan.

What then is the situation at the key construction sites of the republic less than 80 working days before the end of the Sixth Five-Year Plan?

This year's power consumption in our country is expected to amount to 75.5 billion kWh of which our domestic production will supply approximately 72 billion kWh. The balance will be drawn from the joint CEMA pool. This year new capacities with an overall installed power output of 1,297 MW are expected to go into operation to meet the planned increase in power consumption. This is a steep annual increase in our conditions.

By bringing also the second 440 MW unit of the V1 nuclear power plant into trial operation the CSSR carries on its large-scale industrial development of nuclear power. This milestone in the development of the Czechoslovak nuclear power base is important also from the aspect of future development of additional power resources because of the valuable experience gained in preparatory work, the implementation of construction and assembly work, the start-up and operation of the V1 power plant needed to master the tasks required to establish the nuclear power industry in the CSSR.

But it needs to be stressed that without the great and effective assistance of the Soviet Union we would have been unable to achieve such progress in building and starting operations of nuclear power plants. This is also the reason why already two units of the V1 power plant are in operation today as an important contribution to the Czechoslovak electrification system supplying reliably additional 4.6 billion kWh power which is equivalent to a saving of 4.6 million tons of brown coal.

Together with the second unit of the V1 power plant two additional thermal units with 37 MW total power output came into operation this year. This leaves 820 MW total generating capacity to be brought on line in the remaining 4 months of this five-year plan.

The technically exacting construction of the Melnik III power plant to which the SZM (Union of Agricultural Youth) Central Committee pledged assistance at the 15th CPCZ Congress is about to be completed. At present preparations are under way to begin trial operations of the entire technological plant of the power unit.

The trial run of the first of five 210 MW units of the Prunerov I power plant will also be completed by the end of the year. The assembly of the technological equipment by the Polish contractor proceeds satisfactorily. Only the Prague Armabeton enterprise is far behind with its work on preparations for the construction of the pumping stations, cable lines and supports for the deslagging pipeline.

This year's last addition to our power base is expected to be the construction of the pumped storage hydroelectric power plant on the Cierny Vah River where, by the end of the year, the first of six 110 MW units is expected to come on line. The efforts expended by the suppliers CKD Blansko and the Plzen Skoda branch enterprise in assembling the technological equipment of the first power plant set are deserving of recognition and as always also the employees of the Bratislava Elektrovod for assembling the electrical installation of the underground distribution network and the above-ground switching station. All these facts indicate that the first hydroalternator will be in operation before the set deadline.

But there are problems in the construction of the first feed duct between the first upper reservoir and the power plant. The builders of this part of the water works Banske stavby Prievidza (Prievidza Mining Construction Enterprises) and Hutne montaze Ostrava (Ostrava Metallurgical Assembly Works) are a month behind schedule. This will delay the gravitation filling of the upper reservoir with water designed to shorten the preliminary comprehensive testing of the first 110 MW power plant generating set. But they are doing everything in their power to reduce the delay. In this way the overall power plant capacity increase postulated by the 15th CPCZ Congress will be fulfilled.

The vast program of the planned vital development of our fuel and energy base includes the ongoing construction of additional nuclear power plants at Jaslovske Bohunice and at Dukovany, preparatory work on the construction of nuclear power plants at Mochovce, in South Bohemia and North Moravia, the construction of additional water works on the Danube and at Dlhe Strane, the opening of strip mining sites in Chabarovice, Vrsany, Maxim Gorkiy and elsewhere. In the Seventh Five-Year Plan an increase of 4,000 MW in new generating capacity is expected to be built. The lions share of 2,640 MW will be supplied by the Jaslovske Bohunice and Dukovany nuclear power plants. For both these projects the material and economic prerequisites exist to meet the increase in generating capacity within the deadline postulated by the government. But both projects struggle with problems stemming from inadequate preparatory work.

Another problem plaguing these projects is the shortage of construction steel caused by the Vitkovice Klement Gottwald Iron and Engineering Works which is the reason for the more than 2-month delay in the construction of the main generating unit by Hydrostay.

The problems facing the Dukovany project are even more complicated and are the cause of up to 6 months delay due to a shortage of materials, steel door frames, etc. The responsibility is shared by the project supplier because of his failure to institute two-shift work and work on weekends now and during the most advantageous summer months. Because of this development the target deadlines for the start of individual generating units are not likely to be met even though the design work on both these projects was expected to be specifically efficient. Also, the Vitkovice Skoda enterprise, the Klement Gottwald Iron and Engineering Works and Kralovopolske strojarne [Kralovo Pole Engineering Works] must catch up with the production of construction steel, steel frames and hermetically sealing doors and other equipment deliveries. At the same time there is an urgent need to increase the construction capacity by adding more experienced carpenters, steel workers and bricklayers. Further, like the Bratislava enterprise Hydrostav also the Brno enterprise Priemyselne stavby [Industrial Construction Works] must institute shift work at the Dukovany power plant construction site and around-the-clock work at sites which lag behind. Under such conditions, as happens at the construction site, also the managerial and coordinating activities of the investor must be pursued more energetically to accelerate deliveries for the projects.

The results achieved by our builders demonstrate that the Kcs 724.7 billion in investment allocated to capital construction in the Sixth Five-Year Plan will be materially fulfilled and that capital construction is a success as the prerequisite of a secure future and a rising standard of living.

8664
CSO: 2400

PROGRESS IN METALLURGY, ENGINEERING VIEWED

Prague HOSPODARSKE NOVINY in Czech 12 Sep 80 p 2

[Commentary by Jiri Poslt, department deputy chief, CPCZ Central Committee: "Metallurgy and Heavy Engineering"]

[Text] From the beginning of the year the fulfillment of the plan in the metallurgy-engineering and electrotechnology complex has been characterized by endeavors of workers, technicians and managers to perform well the tasks of the last year of the Sixth Five-Year Plan.

In the province of the Federal Ministry of Metallurgy and Heavy Engineering the efforts are centered on ensuring national management of metals, especially their appropriate structure. This is a great technical and organizational struggle that must be intensified further in the second half of the year, and especially in 1981 and the following years of the Seventh Five-Year Plan. Metal conservation must be a rule, starting with its metallurgical processing up to its use in engineering, construction and other fields of the national economy. We ask from the metallurgical workers that they introduce speedily such products as will improve the material standards of goods and ensure availability of products which we have to import from capitalist countries. We must therefore seek effective ways to ensure adequate supplies of electric generator and transformer sheet steel, and suitable materials for our canning industry and food industry in general. Production of bonding materials cannot be neglected either.

In the field of heavy engineering the efforts in the first half of the year were concentrated on supplies for important construction projects at home and abroad. For example, a 500 Mw block was installed in the Melnik electrical power plant thanks to the good work of the Skoda workers. Deliveries from other industrial production units also serve well in the Prague Metro, in chemical plants, in the food industry and in many important construction projects. However, old shortcomings still exist, or one should say, persist. They have a common denominator: the poor functioning of the higher supply functions and failure to achieve the objectives already approved at the third session of the CPCZ Central Committee.

Greater emphasis must be placed on deliveries of items destined for operation in the USSR; CHEPOS [Enterprises of Chemical and Food Industry Machinery] is primarily involved. And the managerial personnel of the sector, of industrial production units and of plants must also continue to give maximum attention to supplies for the fuel and energy base, from coal mining to the construction of nuclear electrical power plants.

Workers in the sector of general engineering did not ensure the necessary dynamism in the first half of the year. Zbrojovka enterprise in Brno, for example, increased its backlog from the past period and at the same time recorded the lowest ratio of the annual plan. The Zcechoslovak Automobile Works in Prague and the Heavy Engineering Enterprises in Martin also showed a lower ratio of the annual plan than the average for the sector. As a whole the sector exceeded the plan by Kcs 324 million. The weak spot is the production of replacement parts; it amounted to 48 percent of the annual plan. The ratio continues to be affected significantly by the Czechoslovak Automobile Works in Prague with a 45-percent quota of fulfillment and the Heavy Engineering Enterprises in Martin with the current 51 percent. The latter has not met deliveries for capital investments either, especially to the sector of the Federal Ministry of Transportation and the Ministry of Agriculture and Food of the CSR (only 45 percent of the annual plan) and the SSR (47.9 percent of the annual plan). All industrial production units with the exception of the Engineering Technology Works in Prague bear responsibility for this situation.

Deliveries to the domestic market far above the plan are characteristic. There is not yet, however, the required selection of goods, especially in refrigerators, kitchen ranges, solid fuel stoves, enamel tubs and gas fuel.

In the area of innvoations in consumer goods, the existing situation has not improved. Of the 54 products planned for 1980, by the end of June only 23 had been produced, of which 20 were placed on the market.

The lowest production dynamism was noted in the sector of the Federal Ministry of Electrotechnical Industry. Low fulfillment quotas were recorded by the High Voltage Electrotechnology Enterprises in Prague and by Tesla enterprise in Bratislava.

As long ago as during the session of the CPCZ Central Committee on technological development in 1974 it was stated that the metallurgical-engineering complex plays an important role in the tasks associated with the achievement of a higher general work productivity. This applies even more to industrial production units and the electro-technical and electronic fields, where one expects that more human and routine labor saving devices should be available. Shortages of parts, however, hinder the application of electronics. Executives of the ministry, together with enterprises, are successfully eliminating some material difficulties which impede their work. At the same time a long range program is being prepared for the field of electrotechnics and electronics, while buyers and the producers themselves must have a sufficient supply of quality components. The main effort must therefore be channelled as before into this area.

In all three sectors attention is centered on the important export tasks. Nevertheless, there are still some shortcomings which should not escape the attention of the plant managers in particular. There are, for example, insufficient supplies of replacement parts as regards both variety and quantity. In deliveries of complete industrial plants the biggest problem is meeting the requested and controlled terms. We must improve in general our cooperation with the foreign trade companies by seeking common ways to raise our sales. This is, after all, a question of foreign currency needed to purchase raw materials, machinery and equipment. Foreign currency regulation is and must be the law for the entire managerial axis. When requesting imported items, every organization must ask itself the basic question--is it meeting responsibly its export duties.

At the half-year mark we also evaluate more deeply in general the attainment of qualitative indicators, work productivity, profits, expenditures and the use of wage funds. In many cases this gives us new views with regard to improvements of the system of planned management and the objectives approved at the 14th session of the CPCZ Central Committee. In this respect such requirements as better production utilization of the technological base, reduction of inventories, use of wage funds and better management of raw materials and energy definitely merit greater attention. There are still considerable unused resources but their utilization has only begun. Suggestions for changes of the plans as were requested by some industrial production units, are of no help here. What is needed is energetic, well conceived, work especially on the part of the managers, technicians, engineers and economists.

Plans are being prepared at the present time for 1981 and the Seventh Five-Year Plan. These plans must reflect to a greater extent the ideas which were already considered at the third session of the CPCZ Central Committee in 1976. They mainly concern a broader application of technological advances and improved management of economic activities, including the modification of the production structure for domestic and foreign trade. In this light we must work on the attainment of the objectives in the second half of 1980 also from the viewpoint of the preparation of the plan for 1981. The key factor here will be the development of work initiative and socialist competition in all work sectors.

9562
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FIGURES PROVIDED ON DEVELOPMENT OF SYNTHETICS INDUSTRY

East Berlin PRESSE-INFORMATIONEN in German No 90, 31 Jul 80 pp 5-6

["Facts and Figures" report by Press Office, Chairman, GDR Council of Ministers: "Plastics and Elastics Used in Many Ways"]

[Text] Plastics are in part replacing metals, porcelain, glass, wood and leather as raw materials. Basic production materials in the chemical industry are coal, petroleum and natural gas. The good properties of plastics are their low density, good electric insulation values, corrosion resistance, good workability and low heat conductivity.

The most important thermosetting plastics and thermoplastics which are processed in the GDR are polyvinyl chloride (PVC), polyethylene (PE), polystyrene (PS), polypropylene (PP), polyamide (PA), polyurethane (PUR), polytetrafluoroethylene (PTFE), fiber-glass-reinforced unsaturated polyesters (GUP) and thermosetting plastic materials.

Coal and lime are the basic materials used to produce synthetic rubber in the Chemical Works Combine VEB, Buna. In the Plastics and Elastics Processing Combine VEB and the Tire Combine VEB, Fuerstenwalde, to mention only two processors, rubber mixtures are manufactured from natural and synthetic rubber using preparation methods suited for particular purposes and are processed into an enormous variety of rubber products.

The assortment of synthetic and natural rubber involves about 30 types, including special types which are resistant to gasoline and oil, are nonfading and have high resistance to abrasion.

Plastics can be economically produced and efficiently processed. The ratio of investment costs to produce plastics, crude steel and aluminum is 1:3:5. The energy costs of production have a ratio of 1:3:8. The material utilization factor for metals is between 60 and 70 percent, for plastics between 90 and 95 percent. Limitations on the use of plastics stem from low resistance to heat, low strength and electrostatic charging.

In 1950, 38,000 tons of plastics and synthetic resins were produced in our republic. This year it will be 800,000 tons. Particularly noteworthy is the expansion of capacities to produce polyvinyl chloride, polystyrene and high-pressure polyethylene in the Chemical Works Combine, Buna, the largest manufacturer of plastics; also noteworthy is the establishment of a new facility to produce low-pressure polyethylene in the Walter Ulbricht Leuna Works Combine VEB. Production of synthetic rubber in the Chemical Works Combine VEB, Buna, rose in the past 30 years to 5.4 times the original level; in the process adaptation and expansion to modern cold rubber production was accomplished in the past few years.

Plastic and elastic products are used in all sectors of the economy. One processor of these raw materials is the Plastics and Elastics Processing Combine VEB. This year 80,000 tons of plastics and 120,000 tons of rubber mixtures will be processed into 150,000 different products. Some 95 percent of the goods produced in the combines are component products for other industrial sectors which help determine the readiness for use, serviceability, efficiency and service life of a large number of final products.

For example, 1 ton of plastic material in the appropriate type yields 2,860 meters of water hose, 2,050 10-liter pails, 775 49-liter tubs or 449 60-liter tubs. One ton of elastic material, for example, produces 1,420 square meters of floor covering or 1,075 rubber boots for children.

Using plastics is economical if the plastic is chosen in a manner appropriate to the specific purpose, if the most economical processing method is selected and if the appropriate treatment of the plastic is guaranteed. For example, in the efficient extrusion blow molding process a 120-liter barrel can be made from polyethylene in 1.6 to 1.9 minutes with a service life of 4.5 years, while a wooden barrel, which requires more labor and time to make, lasts only 1.5 years if subjected to the same application. Plastic barrels are corrosion-resistant, the maximum temperature rating ranges from -20°C to +60°C.

The decorative laminated plastic Sprelacart is made from special papers which in the molding process are treated with phenolic resins impregnated by the effect of pressure and heat. Kitchen furniture, for example, is coated with this.

Special papers, phenolic resins and molded fiberboards are used to make surface-molded improved fiberboards (OPV-boards) which are used for ceiling and wall coverings for large areas. For example, decorative laminated plastics were used in Berlin's elevated trains. With 100 different decors and surface configurations this plastic product meets the highest requirements.

It is no longer possible to imagine life without the "1,000 little things" made of plastics and elastics. The workers in the Plastics and

Elastics Processing Combine VEB, for example, will this year produce 2 million pairs of rubber boots, 124,000 children's bathtubs, 582,000 laundry baskets, 3.8 million soap boxes, 3.3 million pails and 3.7 million storage containers.

Radial shaft gaskets made of elastics are decisive for the serviceability of gears in rolling mills, vehicles and also kitchen appliances. Approximately 10,000 customers in the GDR are supplied with 3,000 different sizes. The smallest gasket has an outside diameter of 13 mm, the largest 755 mm. It is indispensable for the serviceability of ship's propellers.

To produce efficient conveyor belts use is made of high-quality elastic materials, which gave the rubber coverings a high degree of resistance to wear and tear and abrasion, of tear-resistant polyamide and polyester silks or of steel ropes as carriers. Conveyor belts rationalize the transport of bulk and general cargo. Joined together by successive bonding or vulcanizing into continuous units, conveyor distances up to 2,500 m, for example, can be handled in the GDR by outfitting the conveyor units with textile belts. If wire-reinforced belts are used, the conveying distance can be as high as 10,000 m.

The weight of plastic and elastic parts--excluding the plastic parts in vehicle electric equipment and auxiliary products, lacquers and paints, sealing substances and adhesives--is 25.1 kg in a Wartburg 353 W and 47.6 kg in a Trabant 601. The Plastics and Elastics Processing Combine VEB produces about 300 plastic and elastic parts for every Wartburg.

A large number of molded parts in electric equipment, machines and vehicles are made of phenolic resin molded materials. Phenolic resins and fillers, such as wood flour, stone flour, textile fibers, textile scraps, glass fibers and other things, are processed by molding, transfer molding or injection molding, for example, into telephone casings, reels, furniture handles, molded parts for measuring equipment or vehicle construction.

The Super-Elastic-S industrial tire, a solid rubber tire, is sturdy and resistant to wear and tear. It combines the security of solid rubber tires against breakdowns with the good cushioning and muffling action of air tires and is used on forklifts, small cargo carriers, electric carts, construction machinery and agricultural equipment.

Taking into consideration the change in indices--caused by the natural aging of organic materials--recycling of secondary plastics is possible only in the case of thermoplastics. Thermosetting plastics cannot be reheated after curing. They would be destroyed. On the other hand, if regranulated, thermoplastics become plastic and thus reworkable by being heated.

In 1980 in the GDR a total of 28,000 tons of secondary plastics will be processed. This will be done, for example, in the Elaston Works VEB, Friedrichroda, the Plastic Coating and Manufacturing of Technical Textiles, Fehrbellin, the Plastic Processing Works, Schwerin, the Chemical Works Combine, Buna, and other enterprises. The general concern is to return the secondary plastics, which accumulate as a result of production, to the materials cycle in the same enterprise in order to avoid additional transport costs. At present the Ministry for Chemical Industry, in cooperation with the trade and the Used Raw Materials VVB [association of state enterprises], is testing to determine in what form in the future thermoplastics from households can be returned to the raw materials cycle. Also, research is currently being done on how and where thermosetting plastics can be used on an industrial basis as fillers, for example.

12124
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GERMAN DEMOCRATIC REPUBLIC

PROBLEMS RELATED TO BUILDING EXPLOSIONS EXAMINED

Leipzig CHEMISCHE TECHNIK in German Vol 32 No 9, Sep 80 signed to press 22 Feb 80 pp 481-484

[Article by Johannes Pester and Thomas Wartner, Chamber of Technology: "Criteria on the Necessity of Measures To Protect Against Explosions in Buildings--Report From the VEB Chemical Facilities Construction Combine, Leipzig-Grimma"]

[Text] Statement of the Problem

Measures of structural explosion protection are intended to cope with damage produced by explosions and with resulting conflagrations.

In the relevant section of Specification 58/78 of the State Building Inspection Department--Architectural Explosion Protection [1]--there is, inter alia, the following statement: "1.2. This specification applies to newly erected buildings in which there exists explosion risk in the sense of TGL 30042. This includes newly erected buildings having technological installations which in the event of accident can produce dangerous increments of pressure within the enclosed space (e.g., through rupture of pressure vessels or through spontaneous reactions)."

With regard to structural explosion protection--in the following abbreviated as BES--when there is gas explosion and dust explosion risk in the sense of TGL 30042 [2] the specification further provides: "1.3. In preparing engineering appraisals of fire and explosion hazard, in accordance with TGL 30042, it must be determined whether measures of structural explosion protection are required...."

The latter paragraph thereby imposes an obligation to decide upon the need for BES not upon the individual applying Specification 58/78 but rather upon those persons responsible under TGL 30042 for preparing the appraisal of fire and explosion risk. The logical basis of this occupies the foreground of the relevant section of Specification 58/78: "1.1. It is the object of structural explosion protection to delimit by means of architectural measures the consequences of an explosion. Architectural explosion protection measures are basically designed to meet a situation in which the technological protective measures of TGL 30042 fail to be adequate."

The commentary on Specification 58/78 [1] states further: "The architectural planner cannot in general make a determination as to whether explosion risk exists, as to the degree of the explosion risk or whether architectural protective measures are necessary over and above technological protective measures. The corresponding determinations should therefore be supplied to the architectural planner."

Of fundamental importance for the application of Specification 58/78 are the sentences of commentary which immediately follow that specification: "Wherever there exists explosion risk they will also as a rule be need for measures of architectural explosion protection. But situations can arise in which the realization of architectural protective measures produces severe engineering complications or high costs. In such situations a responsible determination must be made as to whether by means of intensified technological protective measures the risk cannot also be adequately delimited without architectural protective measures. This applies particularly to the performance of reconstructive measures in an already existing structure."

These regulations yield three basic questions for a preparer of an appraisal of fire and explosion risk:

1. When in the course of capital investment planning must binding statements be made regarding the need for BES measures?

2. On the basis of what criteria are decisions to be made regarding the need for BES measures in accordance with Specification 58/78?

3. What are the minimum data which must be supplied to the architectural planners in order to apply Specification 58/78?

Schedule Date for the Decision as to BES Measures

The question as to the point in time in the course of investment planning when a decision must be made as to the need for BES measures is closely related to the question of the effect of BES upon the architectural design. Senf [3] lists in this connection the following functional and design details:

a. Safety spacing,

b. Safety zones around explosion-endangered buildings,

c. Architectural style of the buildings,

d. Exits, evacuation routes and stairways,

e. Size of the explosion-endangered sections,

f. Maximum number of stories and building height,

g. Design details for explosion pressure relief and for opposing the effects of explosion.

From this rough account it may be seen that BES plays a role throughout all architectural design of explosion-endangered buildings. Even initial studies of site selection involve BES decisions.

Therefore a decision must be made as to whether a capital investment requires BES measures or not at least no later than the date on which binding approval is given to the building plan. Every postponement of this decision can seriously reduce the possibility of achieving an optimal design. In the absence of prerequisites for making a realistic evaluation of the risk situation of the planned object under its expected conditions of operation and location it is advisable to become oriented, as a preventive measure, with respect to the application of Specification 58/78. The following section contains some aids to decisionmaking.

Decision Criteria With Regard to BES Measures

We have already explained the reasons why the architectural planner is not in a position to judge the general necessity for BES measures. However, at the beginning of investment planning the technologist is equally ill prepared to make a comprehensive judgment of the economic and engineering effects of BES measures. Even in the advanced stages of investment planning it is only with the help of a meaningful evaluation of explosion risk, in the sense of TGL 30042, that it is possible to survey the interaction between explosion preventive measures and architectural measures designed to reduce the destructive effects of an explosion.

From this point of view it is obviously impossible to base decisions regarding the essential need for BES measures upon a combined evaluation of engineering and architectural protective measures. In accordance with their safety engineering significance all forms of explosion protection may be graded in three groups: 1) measures for the prevention of explosion risk (so-called primary explosion protection); 2) measures preventing the ignition of explosive mixtures (so-called secondary explosion protection); 3) measures for avoiding or palliating explosion damage (e.g., BES).

From this ranking it may be seen that BES functions under the heading of employee job safety within the endangered area only as one (of several) modes of compensation for inadequate explosion safety. On the other hand from the point of view of the actual risk situation in chemical installations and in terms of the industry-specific variable need for protecting the immediate environment of explosion-endangered areas or buildings, BES is often undervalued. But such considerations belong uniquely in the domain of compensation protection.

Decision criteria of fundamental significance are the following:

a. Special BES requirements in the specifications relevant to the particular case of application,

b. The probability of immediate danger to life and health resulting from explosion,

c. An above-average need on the part of economically important installations or facilities for protection against the consequences of explosion,

d. An above-average damage probability for the explosion-endangered industrial facilities concerned.

This ranking corresponds to the increasing level of difficulty encountered in evaluating these factors. Each factor can just by itself be the decisive criterion of need for BES measures.

Existing specifications for special explosion-endangered buildings and work sites are not affected by Specification 58/78; the requirements contained in such specifications with regard to architectural explosion protection must be met [1].

The Soviet standard "Explosion Safety, General Requirements" [4] gives valuable suggestions regarding the allowable probability factor for the endangerment of employees by the effects of explosion; it also gives indications with regard to damage probability. In that reference the allowable annual explosion probability is limited to the value 10^{-6} and permits the same level of probability of 10^{-6} per person also for the effect of "factors for dangerous human explosion sequelae in the course of 1 year."

If BES is to be a safety factor capable of corresponding to the increased protection requirement of specific installations then in addition to the explosion-endangered work site the neighboring areas, buildings or installations must also be evaluated as a potential center of explosion.

The summary of those safety factors which are susceptible of evaluation and of the decisive criteria as they appear in the proposed decision-tables (Tables 1, 2, 3 and 4) provides the individual responsible for the appraisal of fire and explosion risk with a basis for appropriate determinations regarding the need for BES measures in accordance with Specification 58/78. In the stage of capital investment planning and also in the design planning phase the evaluation of the explosion risk of an industrial installation continues to be based largely upon intuitive decisions [5, 6]. In the absence of mathematically determinate criteria one lacks the essential prerequisite for obtaining a uniquely defined result in analyzing an individual case.

Also for a qualitative-metric evaluation with the aid of expert methods, like those proposed by Altmann in another connection [7], there does not exist any reliable set of principles for logical application in BES. In order to make possible decisions which are acceptable despite the verbal character of the criteria employed the decision factors have been graded in terms of fundamental and alternative groups. It is necessary that there be a judgment at least of the fundamental factors (Table 1) and of a group of alternative factors (Tables 2, 3 or 4). The imposition of limits upon BES measures relative to the requirements of Specification 58/78 or a dispensation from such measures can arise only when the decision of Table 1 also leads to this conclusion.

Prerequisite Data for BES in the Appraisal of Fire and Explosion Risk

If it has been decided that BES measures are necessary (or not necessary) for the building in question in accordance with Specification 58/78 of the StBA then this fact must be unambiguously documented in the appraisal of fire and explosion risk [5].

A substantial portion of the BES is governed in design cost by the building's risk from a possible explosion, expressed by the explosion risk class (EGKL) in accordance with Specification 58/78:

EGKL I	Very great building risk
EGKL II	Great building risk
EGKL III	Less great risk to the building

Of decisive importance here are principally the explosive force of the explosive mixture (pressure rise in MPa/s) and the pressure effects which occur. Since at the present time there are available no generally accessible tables for explosive force values nor can any practical method be offered for estimating pressure effects, the commentary to Specification 58/78 [1] permits substitution of a very simplified procedure for assigning the EGKL. On the basis of the combustible gases and vapors explosion class in accordance with TGL 30020/03 [8] and using the distinction between "explosive" and "highly explosive" combustible dust-air mixtures and by means of the grading of risk in accordance with TGL 30042 the construction engineer can also establish the correct EGKL by himself. There are further conditions which relate to the ratio of the danger zone volume, according to TGL 30042, to the total space volume.

The structural engineer requires the following absolutely essential preliminary information:

1. Determination whether Specification 58/78 of the StBA is applicable to the building concerned (or parts thereof) or not;

2. Assignment of the appropriate explosion risk class (EGKL I, II or III) or--in place of this--assignment of a characteristic explosive material, including:

2.1. For gases and vapors (liquids) the explosion class in accordance with TGL 30020 and the characteristic gaseous explosion risk level (EG) in accordance with TGL 30042 (EG 1, 2, 3 or 4);

2.2. For dusts the designation "explosive" or "highly explosive";

3. The extent of the danger zone in the space under consideration (in case the entire space is not involved).

All further details, e.g., those ranging above a merely partial application of Specification 58/78, together with design details for the BES or for the installation of pressure relief surfaces do not come within the scope of an evaluation in the sense of fire and explosion prevention in accordance with TGL 30042. These data relating to the reduction of recognized risks should appear in the architectural GAB* record. While there certainly exists no legal impediment to also including such determinations in the appraisal of the fire and explosion risk, the responsibility for all design requirements of architectural explosion protection nevertheless remains with the building engineer.

The situation is substantially different when one is dealing with the BES for buildings affected by risks other than those of gas or dust explosion, in accordance with TGL 30042, e.g., for spaces occupied by pressure vessels or by explosive materials.

In such cases one lacks the preliminary data required to extract a representative EGKL from the commentary to Specification 58/78. Explosion risks which lie outside the scope of TGL 30042 must either be established in special appraisals, i.e., for coal dust and coke dust endangered industrial sites in accordance with ABAO 125/2, or they must be documented in the technological GAB record. However, even then the technician should come to an understanding with the building engineer regarding the need for BES measures, so that the building engineer may promptly submit a statement of the preliminary data which he requires for the application of Specification 58/78 or of any other special specifications.

Summary

In the Specification 58/78 of the State Building Inspection Department--Architectural Explosion Protection--it is required that in formulating the fire and explosion risk appraisal a decision should be made regarding the need for measures of architectural explosion protection. This decision must be made even as early as the capital investment planning, prior to approval of the building plan. By means of a selection of tabularly arranged criteria and by assigning corresponding decision categories it is possible to suggest practical decision aids to the individual making the judgment.

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* Health protection, labor safety and fire protection.

Table 1. Decision Factors for Determining the Need for Measures To Be Taken in Accordance With Specification 58/78 of the State Building Inspection Department--Architectural Explosion Protection (BES)

1. Fundamental Decision Factors

Decision Factor	Decision Regarding Application of Specification 58/78: a) Application Required	Decision Regarding Application of Specification 58/78: b) Application Not Obligatory	Examples, Remarks
1.1. Specification reference for the special case application	Whenever in other regulations BES is required in accordance with Specification 58/78	Whenever other regulations contain concrete requirements for BES	a) At present no example known b) E.g., in ABAO 125/2; also see commentary to Specification 58/78
1.2. Reconstruction of the explosion-endangered zone in accordance with TGL 30042	Whenever the danger zone is surrounded on all sides by buildings and there exist no other reasons according to Col b (1.1 to 1.4)	--when the endangered zone is not completely surrounded by structures --for open-air facilities --for framework which is not surrounded by construction --for structures embedded in the earth	a) E.g., for normal heated interior spaces in which employees are required in the production process to work with dangerously explosive materials
1.3. Danger to life and health resulting from explosion effects	--for an explosion probability $>10^{-6}$ per person and year within the endangered space --for explosion probability $>10^{-6}$ (also without danger to persons)	--whenever potentially endangered persons can be promptly evacuated --whenever safety measures in other locations exclude explosions in the work site and there exists no reason on the basis of Col a (1.1 to 1.4)	a) Analogously GOST 12.1.010-76; probability 10^{-6} per year corresponds, e.g., to an acute danger during 5 min annually b) E.g., when gas warning installations with early warning

Table 1.1 (continued)

Decision Factor	Decision Regarding Application of Specification 58/78		Examples, Remarks
	a) Application Required	b) Application Not Obligatory	
			are used or when the technological installations have a construction which is resistant to explosion pressure
1.4. Protection required for the explosion-endangered building because of national economic considerations	--for an endangered building having a protection requirement which is above average or --for neighboring buildings within a 100-meter radius having a protection requirement which is above average	--in the case of low-level protection requirement (reconstruction more economical than BES; no production interruption unacceptable from the point of view of the national economy) and --whenever there is no reason on the basis of Col a (1.1 to 1.3)	a) Depending upon the technological regulation applicable to the building; for the environment: e.g., energy centers, institutions serving the needs of children and the like b) E.g., for isolated storage facilities for paint (without decanting)

Table 2. Decision Factors for Determining the Need for Measures To Be Taken in Accordance With Specification 58/78 of the State Building Inspection Department--Architectural Explosion Protection (BES)

2. Decision Factors According to Characteristics of Explosion Risk

Decision Factors	Criteria	Decision With Regard to Application of Specification 58/78
2.1. Explosion danger from gases or vapors (liquids) Explosion class of the endangering material (TGL 30020/03)/gas explosion risk level (TGL 30042)	IIC/EG1 to EG4	No limitation implied
	IIB/EG4 IIA/EG3	Limitation possible under some circumstances; special testing required
	IIA/EG4	May possibly be omitted
2.2. Explosion danger from dusts (EG-St; TGL 30042)	Highly explosive dust, e.g., magnesium, aluminum, diphenyl	No limitation implied
	Explosion-inert dust, e.g., forage albumen from petroleum derivatives	Limitation or omission possible; special testing required
2.3. Explosion danger primarily within the "inner area of the technical installations"	No explosion danger at the "work site" resulting from industrial operations	Limitation possible; special testing required
	Explosion danger within the inner space of the technological facility only in the event of a breakdown	May possibly be omitted (evaluate in conjunction with 2.4!)
2.4. Totally disabling emission of dangerously explosive materials (acute explosion danger, e.g., through failure of protective measures in	On the basis of experience unlikely or not very likely	May possibly be omitted
	On the basis of experience total disabilities must be reckoned with or episodes of total breakdown	No limitation implied

Table 2.2 (continued)

Decision Factors	Criteria	Decision With Regard to Application of Specification 58/78
accordance with TGL 30042 or failure of the "primary explosion protection")		

Note: "Limitation possible" calls at least for the application of the requirements for pressure relief given in Specification 58/78 of the StBA; with regard to limitations affecting the requirements for meeting building collapse (pressure resistance) and with regard to safety spacing special judgment must be rendered. In this connection attention must also be drawn to compensation possibilities in the form of protective structures or special building configurations (position of the doors, pressure relief surfaces, etc.).

Table 3. Decision Factors for Determining the Need for Measures To Be Taken in Accordance With Specification 58/78 of the State Building Inspection Department--Architectural Explosion Protection (BES)

3. Decision Factors in Accordance With Characteristics of Installation-Engineering Explosion Protection

	Criteria					
	Primary Explosion Protection		Secondary Explosion Protection			
Characteristic of Explosion-Protected Installation	Normal Operation	Breakdown	Normal Operation	Breakdown	Deportment Requirement (personnel)	Decision With Regard to Application of Specification 58/78
3.1. Objectively explosion-resistant procedure	Fully effective	Fully effective	--	--	Non	Not required

Table 3.3 (continued)

Characteristic of Explosion-Protected Installation	Criteria					Decision With Regard to Application of Specification 58/78
	Primary Explosion Protection		Secondary Explosion Protection		Deportment Requirement (personnel)	
	Normal Operation	Breakdown	Normal Operation	Breakdown		
3.2. Objectively explosion-resistant installation	Fully effective	Limited effectiveness	Fully effective	Fully effective	Little	Omission possible
3.3. Subjectively explosion-resistant installation	Limited effectiveness	Limited effectiveness	Fully effective	Limited effectiveness	Moderate	Limitation possible
	Limited effectiveness	Not effective	Fully effective	Limited effectiveness	High	No limitation implied
3.4. Partially explosion-resistant installation	Not possible	--	Fully effective	Limited effectiveness	Very high	No limitation implied

Note: The "breakdown" criterion relates to breakdowns in the effectiveness of the particular explosion protective measure, i.e., in the case of primary explosion protection it relates to the measures taken for avoidance of dangerously explosive mixtures while in the case of secondary explosion protection it relates to the avoidance of sources of ignition. Deportment requirements include the prohibition of open flames, the prohibition of smoking, etc. (slight requirements) and additional requirements respecting the operation of equipment which can call for variably high degrees of concentration of the operating personnel (moderate up to very high).

Table 4. Decision Factors for Determining the Need for Measures To Be Taken in Accordance With Specification 58/78 of the State Building Inspection Department--Architectural Explosion Protection (BES)

4. Decision Factors With Respect to Features Having To Do With Position and Volume

Decision Factors	Criteria	Decision With Regard to Application of Specification 58/78
4.1. Location of the explosion-endangered space in the building concerned	Exposed exterior position, e.g., at a corner, surface construction, access only from the outside and the like	Limitation possible, possible omission, whenever possible according to Table 1 (1.3; 1.4)
4.2. Volume of the space	<100 m^3	Limitations mentioned in Specification 58/78
4.3. Ratio of the volume of the danger zone, in accordance with TGL 30042, to the space volume	$<10^{-3}$ $<10^{-4}$	Limitation possible Omission possible

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8008
CSO: 2300

DEVELOPMENT OF MANPOWER SITUATION DISCUSSED

Budapest FIGYELO in Hungarian No 37, 10 Sep 80 p 4

[Article by Dr Jozsef Laczo: "Picture of the Manpower Situation"]

[Text] Characteristic of the manpower situation is the fact that in the first half of the year the manpower demand continued to moderate. In some branches and lines, chiefly in the capital city, the manpower supply improved despite signs of a shortage.

With Less Manpower

According to the 1980 planning direction, the reduced production increase in the material branches must be achieved with a reduction of 22,500 workers (0.6 percent). In addition, a small-scale manpower increase (between 0.2 and 0.9 percent) may be realized in the food industry, transportation and communications, domestic trade, and water management, as well as in the agricultural cooperatives. The plan calls for a 1.4 percent manpower increase in the nonmaterial branches.

The reduction in the manpower demand is evident not only in enterprise plans, but also in enterprise and cooperative labor requirements reported to manpower agencies, reports that are characteristic of the whole country. In comparison to the same period last year, such a demand declined, for example, in the Alfold megyes in the first half of the year by 30 to 50 percent, in Budapest in the second quarter by 13 percent.

The vigorous efforts of the enterprises at personnel reduction were due to the combined constraining effect of the manpower situation in the previous years, the measures of the supervisory organs, the moderation of the rate of growth, and the system of demand regulation.

With a more moderate than planned growth rate in production, sales and other areas of performance, and with the decline that took place in industry, in the first half of 1980 there was a decline in the economic areas under discussion of 74,900 workers employed, instead of the called-for decline of 22,500 workers as compared to the same period in the previous year.

Among the individual economic branches and sub-branches, the manpower grew only in water management and communications. Manpower remained essentially stagnant in the agricultural cooperatives (99.9 percent) while in the other economic branches and sub-branches the number of workers employed declined to a greater extent than planned, that is, in the two most important sub-branches of the tertiary sector, transportation and domestic trade.

Accounting to preliminary data, manpower increased by about 10,000 to 11,000 workers in the nonmaterial branches. This included an increase of 2,300 workers in organizations dealing with economic and population services.

Making Up for Shortages by Organization

The manpower situation and the development of employment by economic branches is characterized in the following:

In the first half of 1980, socialist industry employed 46,200 fewer workers than the year before. In contrast to the experience in the previous year, the decline continued for most of the half-year period from month to month. (Formerly, the January decline as compared to December was followed by a personnel increase in February.) The decline resulted mostly from deliberate action, but in part it was also spontaneous, with the extent of the resignations greater than was desired. In many places, chiefly in light industry, where in the multi-shift areas the people quit work to a greater extent than average, the plans reflect the compulsory taking into account of the actual situation and not a deliberate personnel management policy. These light industry enterprises strive primarily to moderate resignations, maintain personnel, and make up for resignations through work organization because they can no longer count on additional investments to replace manpower.

It was rare to find any areas where factories were completely unable to fulfill their production tasks because of a manpower shortage (among the exceptions being the TAURUS Enterprise's Cordatic factory unit, the Technical Rubber Factory, and in washing powder manufacture, the United Chemical Works.) Only the textile industry and metallurgy were forced to make up work time lost due to manpower reduction (increasing overtime by 3.1 percent and 2.6 percent respectively.) But overtime hours worked, as compared to a drop of 2.9 percent in total hours worked, dropped by 9.2 percent.

Without Regrouping?

Even with a personnel decline--in sum and composition--that was greater than planned, the manpower supply increased because, despite the increase in technical equipment, production declined. But in some enterprises and lines, primarily in the capital city, the manpower shortage continued to be characteristic.

Despite the above-indicated reduction in demand for manpower in the capital city, there is still a manpower shortage of 30,000 to 40,000 workers. The difference between manpower demand and supply was also made worse by the branch and trade (occupational) tensions (for example, in retail trade, in urban transport, at the Capital City Laundry, and also in certain public health branches, despite the personnel expansion that has been realized).

However, in the Alfold and South Trans-danubian areas and in the North Trans-danubian districts and absorbing capacity of the tertiary sector is smaller--particularly in the villages--and therefore placement requires a longer time, or commuting is frequent from these districts (the Szatmar-Bereg portion of Szabolcs megye, certain areas of Borsod megye, the northern portion of Bekes megye, the Berettyoujfalu district of Hajdu megye, the southern communities of Somogy megye and the Bakonyi communities, and Kormend and Orseg districts of Veszprem megye). Despite the longer waiting period for employment, we cannot speak of unemployment problems either here or elsewhere in the country. To be sure, personnel reductions initiated by the employers have not occurred anywhere. The method has been to realize the overwhelming bulk of the reductions in the framework of natural manpower mobility. (Attrition through death, retirement and other causes is made up only partly by the hiring of new workers.) In general, they do not plan on withdrawals by personnel quitting, and thus they do not count on manpower shifts among the enterprises either. Personnel declines from natural attrition and quitting are made up partly or wholly from conscious discovery of internal reserves and by way of recruitment. To this end, in 1980, we are continuing the investigation of work areas, and in certain areas we are improving organizational activity.

It is true that there have been reports from several districts, of 10 to 30 jobs having been eliminated, but this is being managed locally and without stress.

The Direction of Manpower Movement

In carrying out the resolutions of the Council of Ministers directed at improving manpower management in nonproducer areas, we have started reducing or regrouping some of the manpower. The manpower management offices in the capital city have received such reports from five affected institutes--the Construction Information Institute, the Budapest Department of the Kecskemet Winery Research Institute, the OVH [National Water Bureau] Documentation and Continuation Training Center, the Hungarian Style Institute, and the Oil Plan. The measures in question affect 30 to 190 workers in each of the institutes, or a total of 480. Requests have been received from the offices concerned for help in placing 23 workers, the others were handled within the pertinent sphere of authority.

For demographic reasons, the number of those retiring has increased. For example, in the first half of the year, among workers and employees as well as producer cooperative members, the number of retirees increased by 19.8 percent, or 11,400 persons above the same period in the previous year.

Employment has declined in the class of workers whose economic activity is below average--outworkers, part-time workers and pensioners. In industry, the number of outworkers--primarily in the handicraft and domestic industry--declined by 7.7 percent, and employed pensioners by 5.9 percent. In domestic trade, the number of part-time workers and employed pensioners declined by 5.4 percent as compared to the same period in the previous year.

Some of those quitting in the socialist sector have found work in the private sector. The number of workers in this sphere has increased by nearly 7 percent during the past two half-year periods.

The trends experienced in recent years in the areas of manpower mobility have continued to be characteristic. Because of the reduction in the demand for manpower, the workers tend more to remain in their place of work. There has been a substantial reduction, primarily in industry and the construction industry, in the number of ill-considered changes of work place. (The ratio of workers quitting between 1976-1979 declined from 58 percent of all withdrawals to 46 percent.)

There has been a particular decline in the mobility of nonphysical workers. The Economic Research Institute conducted surveys at about 50 enterprises on the characteristics of the flow of physical workers in 1980. They found that there were no new features evident this year in the direction of movement. It may be assumed this applies to more than this year, but it is worth mentioning that 70 percent of the workers participating in the fluctuation--those who left enterprises--were below 35 years of age and in similar ratio were earning below 3,500 forints.

Transitional Difficulties

The ratio of work-relation terminations initiated by employers rose from 8 percent to 17 percent. Within this, there was an increase, small in extent, but perceptible, in the ratio of dismissals for disciplinary reasons as well. Enterprise attitude in this respect is being further strengthened this year.

The economic activity of the enterprises declined decisively because of the decrease in the payment capability of domestic demand. Because of modifications in the economic regulators, including mainly producer prices, some of the enterprises were uncertain about the delivery of orders and the signing of delivery contracts. In this connection, industrial and construction industrial production declined, and as a result of the latter the rise in productivity was less than in previous years.

In the construction industry, production per employee rose according to plan, but only to the small extent of 0.5 percent. In industry, in contrast to the called-for increase of 5 percent in the annual level, the rise in productivity came to only 1 percent for the first half year.

In evaluating the process, however, we must take into account that the following factors are basically at play in the development of industrial productivity: technical development, work organization and manpower management measures; as well as changes in the production structure.

In the first half year, industrial production declined, and this had an unfavorable effect on the development of productivity. We could have countered this effect to a great extent by organization, work time, etc. measures, but these were not implemented everywhere.

Despite the accelerated increase in personnel reduction in the first half of the year, the managing units still have significant manpower. The majority of the enterprises regard the factors which evoked the uncertainty experienced in the first half of the year, and the production, material supply and marketing difficulties, as temporary, and since, in order to meet the possible manpower needs of new production tasks or developments, it is not possible freely to pick up manpower on the labor market at any time whatsoever, the managing organs try to retain some of their personnel.

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HUNGARY

PRIVATELY FINANCED HOUSING CONSTRUCTION DISCUSSED

Budapest FIGYELO in Hungarian No 37, 10 Sep 80 pp 1, 2

[Article by Katalin Bossanyi: "Privately Financed Housing"]

[Text] The acrimonious are saying that a tenth has been added to the nine plagues of the Bible, namely, private housing construction. Just let housing construction be mentioned, whether this is being handled through the National Savings Bank, a housing cooperative, a collective of lawyers, or just with the help of friends and relatives, the most common form of private construction, and the "victims" complaints begin to pour forth. Legal, technical and organizational inconsistencies and stresses are cited, the conclusion being that by the time the new home is ready the builders are sick of it, embittered by the long years of vexation.

A Changed Perspective

Nevertheless, private housing construction, in view of its extent and its proportions, is a socioeconomic factor. Of the 1.05 million housing units constructed during the first 15-year housing construction program (1961-1975), 63-64 percent were privately built. The target for the second 15-year program (1976-1990) is 1.2 million units, with the percentage of those privately built reaching 70-75 percent. As against last year's plan of 90,000 units, 88,196 were actually built--34,056 by the state, which was 9.9 percent above the plan. However, only 55,110 units were built privately, or 8.9 percent fewer than planned. And this when state and social agencies have made and are making increased efforts to improve the supply of plans and materials for builders, to ease the terms for organizing a business, to simplify administration.

The broadest breakthrough in recent years has occurred in the "sphere of interest" of the construction ministry. The Private Housing Construction Development Target Program Committee, which had earlier been oriented primarily toward technical, planning and organizational goals, has expanded since 1975 into an advisory body that from time to time offers a forum for other planning-organizational-development councils likewise involved in the area but separate from each other, specifically finance organs (primarily the National Savings Bank), the domestic trade and communications departments, and last but not least, the National Federation of Cooperatives. The National Federation of Artisan Cooperatives and recently the National Organization of Artisans as well, which is becoming increasingly more involved in private housing construction. The target program committee has also involved in its work the National Technical Development Committee, the Architects' Cooperative, and institutions responsible for formulating and drawing up regional development programs. All this is not just a matter of form, but a sign of a complete change in the way of viewing things.

As a result of their combined efforts, sites in priority settlements have been marked out and the public utilities requirements which can be included in modern settlement-like multistory cluster private housing construction have been estimated. Closely related to this is the fact that, at the initiative of the Ministry of Construction and Urban Development, the legal provisions relating housing construction have been simplified. This will make it possible for official proceedings and administration to proceed more rapidly. A significant improvement has also been made in providing plans for private builders: 135 different approved plans for family housing are now available which the home builder can purchase at a reasonable price. (If these are used without modification the councils are required to grant a building permit within 15 days.) Soon a collection of approved plans for modern cluster houses (row houses, chain houses, atrium-style houses, etc.) will appear. It is also helpful that these plans can now be obtained at Fuel and Building Material Trade Enterprise and National Saving Bank offices. We might also mention progress made in supplying private housing builders with modern structures and building materials in satisfactory quantities and assortment, even though there are still problems with the latter. We should also mention two other areas to which increased attention will have to be devoted in the near future as a result of changes that have occurred in the national economy, namely, that the Ministry of Construction and Urban Development is proposing an increase in financial aid to private housing construction (credit, enterprise assistance, and other types of financial assistance), as well as pressing for the construction of additional model settlements, in conjunction with the National Technical Development Committee and megye councils.

Approved Plans

This favorable picture is somewhat different as regards its details, if we consider the conditions existing in private-housing construction individually.

We have already referred to the Ministry of Construction and Urban Development's modernizing the collection of approved plans for family housing, and in combination with this those for private housing construction in general. Last year a total of 8,440 such plans were sold.

According to comments made by the public, the Center for Information is advertising the speed with which permits are granted for approved plans as their most attractive feature in vain if the councils most directly involved are not paying any attention. The members of many councils simply do not have a clear idea of what these approved plans are and therefore treat them in the old bureaucratic way. Another group of complaints made by the people focuses on the rigid loan-granting practices of the National Savings Bank. They claim that even if they should be able to obtain a loan for installing an attic, if it is paid in installments, construction is carried out at a slower rate. An important observation people make, to which planners and builders alike must pay heed, is that many people want plans for small farm buildings to go along with houses being built in rural areas that conform with the plan, and they are calling for plans that provide the necessary space requirements for various auxilliary activities. And one more legitimate request: it would be a great help in selecting from among the approved plans if the consultant at the information office were familiar with the layout plan of the building site, or if he could evaluate the detailed development plan of a settlement or region at a distance.

Model Residential Settlements

A recent innovation in providing plans for private housing builders that also takes the broader interests of the national economy into consideration is model residential settlement competitions. The advantage of these is that while taking into consideration changes in life style, as well as urban and settlement developmental requirements, they also are well suited to introducing advances made in modern building methods, technologies and investment and organization. In the past 10 years approximately eight model residential settlements have been completed in rural areas, and three in Budapest. In some places construction has already begun, in others only the preparatory work is under way. But in the course of the Sixth Five-Year Plan it is hoped that approximately 12 new model settlements will be started.

According to past experience, progress is so slow because a uniform system of conditions for financing and providing financial assistance for model settlements has not yet been worked out, and their advantages in terms of architecture and urban development are not sufficiently convincing to overcome financial brakes based on earlier habits, both organizational and conceptual. For this reason the Ministry of Construction and Urban Development target program committee is proposing that a special system of centrally provided assistance be established. In the Fifth Five-Year Plan a total of 6 million forints was allocated for this purpose from central funds, which proved insufficient either to mobilize council resources or to realize the goal-oriented intentions of the central government. The realities of the situation justified spending approximately 100,000 forints of state appropriations per model settlement residence on up-to-date support for building, on site preparation, and on partially financing expenses for public utilities--not as a subsidy but as an advance.. Beyond the marking out and preliminary provision of public utilities, this would also considerably reduce organizing time or speed up time to complete the model housing settlement, which in the long run would also lower the total cost.

Actually problems of this type also crop up, only on a larger scale, in the National Federation of Cooperatives megye organization of cooperatives in the housing cooperatives being formed. At the end of 1979, 181,000 housing units were being financed by barely 950 housing cooperatives; during the Fifth Five-Year Plan, 20,000 to 22,000 cooperatively owned housing units were built in this country, so that by the end of 1980 the total number of cooperative housing units will reach 220,000. Experience indicates that this is the most practical and the most commonly selected of the various forms of residential buildings, after self-contracting a private home.

That this "malaise" nevertheless appears to be greatest for this type of construction is due in part to distortions in laws and concepts, and contractor and support-industry problems that today seem to be causes can be regarded as only consequences. The most serious childhood disease of cooperative residential construction is that the cooperative is not a legal person with respect to the investor and the building contractor. The National Savings Bank, for instance, has separate contracts with the members of the cooperative and therefore the position of each family limits organizing construction and production time. Although it often happens, it is also bad for the cooperative's members that the building drags on even though the members are already making payments on the loan for the apartment or house being built. But this is also the reason for the excessive extension of the time required for organizing and preparation. (At present, the housing cooperatives are "held up" an average of 3 or 4 years, and afterwards it is hardly any less time before the owners are able to move in.) That is to say, during the planning and organizing period the representative of the housing cooperative cannot negotiate with the council, cannot obtain --as an advance--credit for site preparation, cannot order the investment program, etc.

In order to overcome this widespread uncertainty, the National Federation of Cooperatives is instituting a Housing Construction Security Fund, which is, however, to provide only temporary relief and is not intended to be a solution to the problems of the housing builders. Another sore point is that they are not given the same treatment as state housing construction--the equal rights problem. Last year, at the suggestion of the National Federation of Cooperatives, it was decreed that the councils should deal with site preparation for cooperative settlement-type multistory private construction in exactly the same way as with that for state housing construction, and it was also made possible for cooperative housing builders to request sites with basic public utilities. The regulations notwithstanding, some of the councils still differentiate between them. What also contributes to this is that the allocation figures for the Sixth Five-Year Plan are being drawn up and this also, understandably, reduces the council's self-assurance. These reasons, as well as the shortage of capacity, play a role in protracting the process. What makes all this even more difficult is that the housing cooperatives cannot sign a contract even with the building contractor until they have taken possession of the land allocated by the council. This fact has made even the previously most confident support industry, the building-industry cooperatives, uncertain. Both the National Federation of cooperatives and the National Federation of Artisan Cooperatives could help the joint planning and preparations, but so far there has been little progress in this area. Instead they have produced pseudo-solutions, for instance the possibility of establishing a building industry cooperative within the framework of the housing cooperative, or of increasing the proportion of self-contracting.

Problems with Material Supply

We should discuss the supply of materials and services for private builders separately. If the figures for the Fuel and Building Material Trade Enterprise and the Ministry of Construction and Urban Development for the first half of 1980 are compared with those for the same period last year, a considerable improvement is to be seen: building-material turnover for the half-year was up 6 to 8 percent, or 10 percent at current prices. Sales and supply are still not in harmony. That is to say, this turnover was 55 percent greater than last year's in terms of forints, but only 30 percent greater in volume, excluding inventories. But for some products--cement, for instance--there was excess supply, while there continued to be a shortage of glazed tiles, roofing materials and in some places even of bricks. Among the reasons for the decrease in demand is that the total number of privately built projects continued to decrease. Holding down the rate of investment also affected this area.

One thing is certain: improving supplies can be effective only when these are combined with more modern services. For instance, the Ministry of Construction and Urban Development could support having the broadest possible range of private builders participate in the system of material-provision contracts, and a similar method could be used in the area of deliveries of prefabricated structures. (It is primarily on the basis of approved plans that builders are given preference.) An increasing effort is the expansion of the so-called "package" system of providing building materials (this would be in connection with the "semi-finished" house program), or they would recommend not "turn-key" ready houses, but rather separate interchangeable building elements components such as the trussing, or a bathroom or kitchen.

The Ministry of Construction and Urban Development is making new efforts to strengthen ties with artisans. An agreement between the ministry and the National Organization of Artisans was concluded this year which both makes it possible for the almost 50,000 artisans in this country in the construction field to play a greater role in private construction and also provides the conditions for the artisans to borrow tools and machinery from the larger building industry organizations. As one step toward this they have made the Construction Industry Capital Equipment Marketing Enterprise partially responsible for supplying the artisans. All this is sure to make private building faster and easier and will also improve the quality of self-contracted construction.

The reason that only a small number of people are able to take advantage of the existing services is to be sought in the outdated views of building-materials marketing, its old-fashioned organization and its fragmented network. According to surveys, 90 percent of the population whose place of residence is near Fuel and Building Material Trade Enterprise sites is completely unable to utilize existing services simply because the settlement itself is unsuitable.

In an attempt to resolve this intolerable situation, the construction and domestic trade ministries have drawn up a common development program this year, the fundamantal purpose of which is to expand the basic settlement system. These large modern settlements will be able to offer a complete line of building materials and structures, to provide customer services and advice, to loan tools and machinery, to assist with transportation and moving, and with minor production tasks. The design for the basic settlement system can be drawn up only by taking into account the settlement development, communications and industrial development concepts. This is one reason that a fairly long time is needed to carry this out. Another delaying factor is that building such a system would cost, it is estimated, 2.2 billion forints. Therefore, work can proceed only gradually, but it can also be seen that significant state support or interministerial cooperation will be required in addition to enterprise funds. Thus, no change can really be expected in this area for 5 or 6 years, according to the most optimistic views.

Credit and Prices

And finally, we must make a short detour and consider what has now become the most "sensitive" point in private housing construction, the relation between prices and credit or financial assistance possibilities.

We have referred to the fact that at the present time privately financed construction accounts for two-thirds of all housing being constructed. If we examine the price changes that have occurred over the last 2 decades we note that housing costs, and construction costs in general, have risen faster every year than those for consumer durables or food, and have also exceeded the rate of increase for incomes. This means that it has proved least possible to maintain the value of the forint in the area of housing construction. Another question, of course, and one that would be interesting to analyze in detail, is: to what degree the current, also very high private housing construction costs are justified.)

This enormous burden is being laid upon the state, and to no less a degree, upon the private builders as well. (As compared to 1978, last year it cost 10.6 percent more to build a small, privately-financed house in this country.) Since the means do not exist to increase in the near or distant future the extent of state housing construction, it is justified to inquire what types of financial-organizational and business conditions could ease the burden on private housing builders. The decline in the percentage of private housing construction from 1978 to 1979 is not a one-time phenomenon, but very nearly a trend. (Evidence: in 1976, 61,000 privately financed housing units were built in this country; in 1977, 59,000; in 1978, 56,000; and in 1979, 54,000. The data for the first half of 1980 show a further decline.)

First of all we must make it clear that the state is assisting private housing builders with the enormous annual sum of approximately 20 to 22 billion forints. (Of which 5 to 6 billion is in the form of central assistance, 10 to 12 billion is in National Savings Bank loans, 1 to 1.5 billion is in employer provided assistance, and 1.6 to 1.9 billion forints is in the form of social policy benefits.) This, however, seems too little with the total number of those seeking housing growing from one year to the next. But this is another source of new inequalities in the search for housing. The average cost of an apartment being built with National Savings Bank financing--taking 60 square meters as a basis--is between 600,000 and 800,000 forints. Just calculate: on the basis of the credit policy directives--using half the building costs--for the conventional family house in Budapest a loan of 180,000 forints can be given, in the main megye towns and priority settlements 160,000 forints, but in some communities only 150,000 forints. Thus, from the very outset, home builders are divided into different categories. Even while such differentiation is understandable in some cases, for instance where clustered or settlement-type construction is involved, discrimination based on occupation certainly is a reflection of an outmoded way of looking at things. (At present, those working in agriculture and in cooperative industry are discriminated against when seeking loans; the 200,000 forint credit goes only to industrial workers.) Even taking every benefit into consideration it is not possible to obtain more than 300,000 or 400,000 forints in external resources. But at today's prices this does not cover even half the costs involved in building a house. It is precisely for this reason--with the consideration of the country's load-bearing capacity--that it is justified to revise the upper limit on National Savings Bank loans and raise the possible credit terms at least to the previous 50-50 base. This, however, only helps those who have already accumulated the necessary down-payment for the National Savings Bank house or cooperative residential housing. And this is what it is getting harder to do with every passing year. If we think only about housing, then saving small amounts begins to seem meaningless, but every group in the society is able to save up large amounts in a comparatively short time. This means that if we disregard the restricted worker residential housing programs, average-income families are obtaining housing on more onerous terms or after waiting a longer time.

How can this situation be changed without depending on the state to keep digging deeper into its pocket? How can the effort to expand the number and scope of privately financed projects in the future become a reality? There are many solutions; now we are presenting only one of the possible alternatives. The specialists have drafted a legal-economic-technical concept for introducing a residential square-meter share (bond). The point was that we agreed upon an accounting unit that is a physical value and that--as far as housing is concerned--can be most simply expressed in square meters. Each square-meter share can be bought at the prevailing price, and when it is redeemed it is repurchased at the square-meter price in effect, without interest. It would be worth mentioning the two kinds of bonds: one kind, the bonds, are redeemable when we exchange those accumulated within a predetermined period, or when the National Savings Bank or housing cooperative counts them toward the down-payment, or when it is a matter of special-purpose advance savings. An important condition for the introduction of shares is that when they are assigned, the possibility of speculating with them or making a profit on them must be precluded and for this reason the square-meter shares are not marketable and can be sold or given only to someone within the purchaser's family. A similarly essential condition is that the bank issuing the shares must use the sums received from the public exclusively for housing construction: this should make it possible for the "housing bank" serving as prime contractor, and the possibly different planning and contracting organizations behind it, to operate in a flexible, responsive fashion. The square-meter share would make it possible for people to find housing more quickly and more equitably, and not least, it would mobilize significant private financing for the state for specific purposes related to housing construction. The theoretical bases of the concept have been worked out, although many technical, economic and, last but not least, business terms have not been worked out in detail for its implementation in practice. This joint search for possible solutions and ways to relieve existing stresses, however, should be able to make a great contribution to improving the general state of health of privately financed housing construction.

[Tables on following page]

Table 1. The Trend in Housing Construction

Key:

1. Thousands of units
2. State housing construction
3. Privately financed housing construction

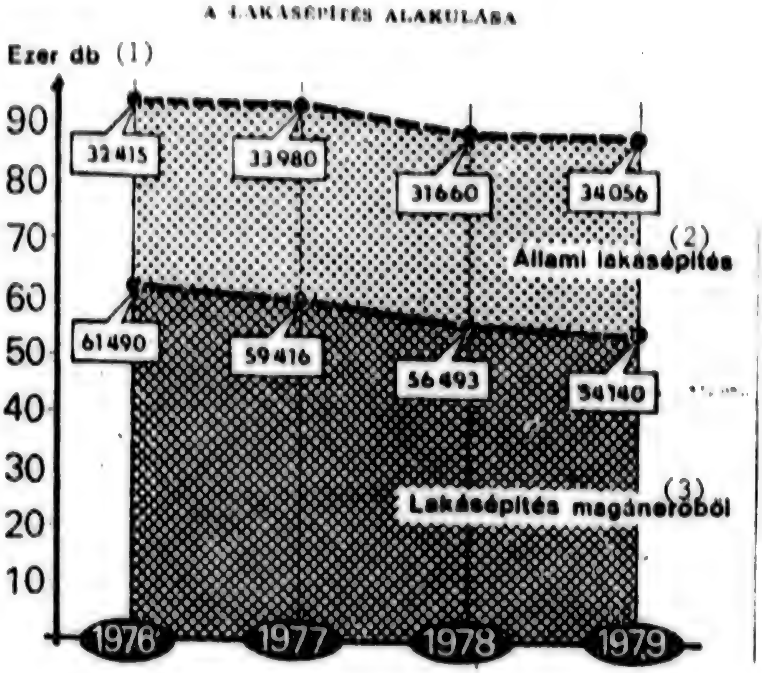
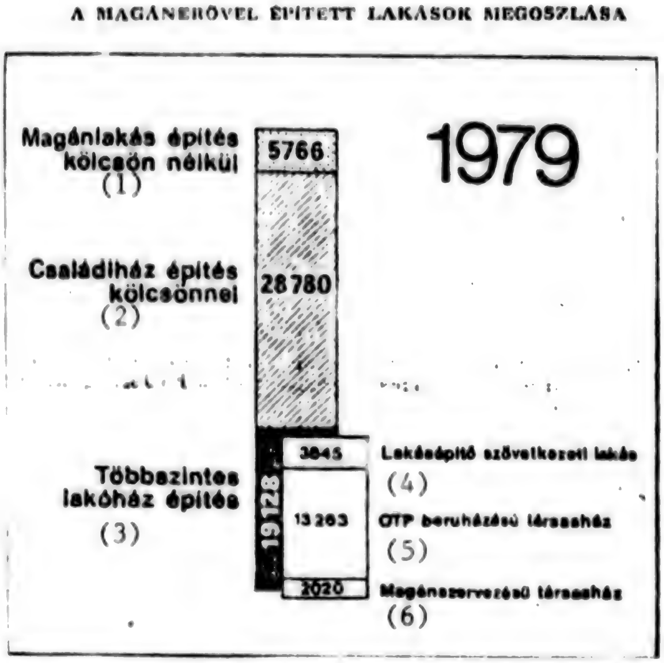


Table 2. Breakdown of Privately Built Housing

Key:

1. Privately built housing built without loans
2. Family houses built with loans
3. Multistory residential housing
4. Housing construction cooperative units
5. National Savings Bank investment condominium
6. Privately-organized condominium



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HUNGARY

AGRICULTURAL PRICE CHANGES SLATED FOR NEXT YEAR

Budapest FIGYELO in Hungarian 27 Aug 80 p 13

[Article: "Price Changes in 1981"]

[Text] In the interest of lightening the planning work of the large agricultural concerns, the Council of Ministers has already come to a decision on agricultural price measures to go into effect on 1 January 1981. The decision provides that the purchase prices for tools and materials used in agricultural production will rise with the passing on of the increases that have occurred in industrial producer prices and in import prices since 1 January 1980. This year the budget will temporarily compensate for these price increases, chiefly by counterbalancing at the marketing agencies in the area of maximum purchase prices for agricultural requirements (agricultural machinery, chemical fertilizer, crop protection agents, industrial feeds).

So that agricultural producers also feel the increase in the expensiveness of the tools and materials used in production and use these more economically, the purchase price level for agricultural machinery is to rise approximately 2 percent as of 1 January 1981. Included here is an average 1-percent increase in the price of machinery built in this country, as determined by changes in industrial producers' prices. The price of agricultural machinery imported from capitalist countries will rise an average of approximately 7 percent.

The agricultural purchase price of chemical fertilizer, crop protection agents and mixed feeds is increasing by an average of 6 percent. As a consequence of the increases in state purchase prices going into effect on 1 January 1981, the selling prices of cereal fodders are also going up 5 to 8 percent. Industrial producer and import price changes made in the area of nonmaximum-priced tools and materials are to be gradually passed on to the state farms in the future as well. Consequently, as compared to prices at the beginning of 1980, the price of agricultural spare parts will increase approximately 7 to 8 percent, while charges for services such as crop dusting, various types of examination fees and artificial insemination will increase approximately 5 percent.

In accordance with the increases in costs and taking into account the objectives of production policy and the interests of export and domestic supplies, the producer (state purchase) prices for agricultural products will go up an average of 5 percent.

Table 1. Price Increases for Various Products

Wheat, per 100 kilograms	20.00	forints
Feed grain, per 100 kilograms	25.00	"
Corn, per 100 kilograms	18.00	"
Rice, per 100 kilograms	100.00	"
Sugar beet, per 100 kilograms	5.00	"
Tobacco, per 100 kilograms	200.00	"
Potatoes, per 100 kilograms	20.00	"
Beef cattle, per kilogram	1.60	"
Hogs, per kilogram	2.00	"
Poultry, per kilogram	2.50	"

The multiyear contract premium that has been paid to small-scale producers is to increase the price by 1 forint per kilogram over the basic price for fattened hogs. The state purchase prices for milk, sunflower and other oil plants and paprika are not changing.

The new state purchase prices for livestock products and for fodders will go in effect on 1 January 1981; those for other crops, in accordance with previous practice, are to be paid for products from the new harvest. The multiyear contract premium paid for fattened hogs sold by small-scale producers will go up on 1 September 1980.

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HUNGARY

CURRENT, FUTURE ROLE OF FOOD INDUSTRY DEPICTED

Budapest KOZGAZDASAGI SZEMLE in Hungarian No 7-8 July-Aug 80 pp 895-907

[Article by Imre Kovacs: "The Situation and Direction of Development of the Food Industry in the 1980's"]

[Text] The natural geographic and environmental characteristics of our country provide favorable conditions for the production of food. We have agricultural production under way on a singulary large portion of our area among European countries--74 percent. So the food industry based on agricultural production occupies a peculiar position in our national economy compared to that of other countries. It processes raw materials that derive from domestic production, and this production can be repeated continually, and even expanded, since the primary energy source for this production is sunlight.

The food requirements of the population can be satisfied by 80 percent of present food production, and the other 20 percent can be exported. This ratio is gradually shifting in favor of exports, since domestic consumption is growing at a slower rate than production itself. Food export makes up some 15 percent of the total export of the national economy, and 65 percent of that is comprised of exports to nonruble countries.

Food production constitutes one fifth of Hungarian industrial production, and it employs 12 percent of industrial workers. It is in our economic interest that this ratio not decrease. On the contrary: is should increase as much as possible.

The importance of the food industry--besides its proportional share--lies really in the fact that its products are used repeatedly every day, and they satisfy human needs that cannot be postponed. It is an indispensable requirement of general social well-being that these needs be continually satisfied. This peculiar situation of the food industry emphasizes even more the working out of the development policy in the coming five-year planning cycle that will provide for balanced domestic supply on the one hand and for active participation in the improvement of economic balance on the other.

Structure and Organization of the Food Industry

The organization of the processing of agricultural products into an industry goes back only a relatively short time. A half century ago, the concept "agricultural industry" still included only a few branches (the milling, sugar, tobacco, and alcohol industries). Today, however, the food industry denotes 14 specialized branches and 33 processing branches that are nearly or totally noninterchangeable. The activities and products of the specialized branches differ from one another so much that we can bring them under the unifying title of "food-industry" activities only on the basis of the agricultural origin of most of their raw materials and on the basis of the destination of their products. Food production thus covers a spectrum of activities in which the weight and importance of various specialized branches varies.

Table 1. Distribution of net production in the state food industry (percent)

Specialized branch	Distribution in 1978	
Meat industry	22.6	
Milling industry	14.2	
Milk industry	11.1	
Preservation industry	9.6	
of this: canning industry		7.8
refrigeration industry		1.8
Confectionery industry	8.0	
of this: "Compack"		3.0
Poultry industry	6.3	
Sugar industry	5.8	
Baking and pastry industry	5.1	
Wine industry	4.2	
Tobacco industry	3.6	
Vegetable oil industry	3.5	
Beer industry	2.8	
Alcohol and starch industry	2.7	
Mineral water, soda water, and soft drink industry	0.5	
State food industry total	100.0	

Source: MEM [Ministry of Agriculture and Food Industry] STAGEK [Statistical and Economic Analysis Center] statistical data.

It is especially important, from the point of view of development, that certain specialized branches (milk, tobacco, sugar, confectionery, alcohol, baking and pastry industries, soft-drink manufacturing) produce almost exclusively for domestic consumption, whereas a significant portion of the products of and other branches (meat, poultry, milling, vegetable oil, wine, and preservation industries) is prepared for export.

The number of establishments of various sizes and capacities that conduct food industry activities exceeds 5,000. Of them, some 1,900 belong to the enterprises* that are considered as part of the food industry branch. The others are operated by agricultural enterprises and cooperatives.

The state food industry plays a critical role in fulfilling the tasks of national supply and in accomplishing exports: it accounts for some 94 percent of the total income from sales. The cooperatives and state farms--in spite of significant development--still only get 6 percent all together. But these latter play a significant role in local supply and in expanding the variety [of products available]. Within the state food industry, we distinguish enterprises under the direct control of the ministry and those under the councils. Control of the 124 enterprises under the ministry is provided by trusts in 10 specialized branches. In three specialized branches (Hungarian Refrigeration Industry Enterprise, Hungarian Confectionery Industry Enterprise, Vegetable Oil and Washing Ingredient Manufacturing Enterprise), large multisite enterprises are functioning. A total of 44 bakery, mineral water, soda water, and soft drink industry enterprises are under the councils; control of them is provided by the agricultural and food industry departments of the county councils.

Large, middle-sized, and small capacities are all found among the industrial establishments. The largest products for single industrial establishments are in the sugar and vegatable oil industries (750 million and 722 million forints, respectively), and the smallest is in the mineral water, soda water, and soft drink industry, which does not reach 6 million forints, but the baking industry also is under 10 million forints. This great disparity is the natural result of the very large differences in the purposes of these industries and the consequent differences in their equipment and location.

The sizes of the establishments within the same branch are also very different. In the meat industry, for example, we find plants for processing several thousand hogs a year and others for 2,000 to 3,000. The situation is similar in the milk and preservation industries, for example. This is the result of the development policy, begun in the 1970's and followed especially in recent years, which insisted on creation of middle-sized and small plants along with plants of large capacity, especially through direct connections between agricultural plants and retail cooperatives. Different domestic and export requirements and economical processing of available raw materials can only be met in this way.

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*According to the classification of the KSH [Central Statistical Office, state industries, industrial cooperatives, and enterprises belonging to large agricultural operations along with independent joint enterprises with mixed ownership belong here; these are collectively called the socialist food industry.

Production Factors in the Food Industry

Agricultural and food-industry production are closely connected with one another. Most of the mass of products leaving agriculture is sold by the food industry. Two-thirds of the raw materials required by the food industry derive from agriculture. It is extraordinarily important, therefore, that the ability of agricultural production to ship out, and the food industry to accept, develop in harmony. Otherwise, tensions arise that reduce productivity and competitive ability.

Agricultural production and processing activity did not develop harmoniously in earlier years: development of industrial capacity was not able to keep up with the fast pace of growth in agricultural production.

In some cases the disharmony between basic-material production and processing capacity has aggravated even more the annual fluctuations in agricultural production although dependency on weather has lessened with the rise in production levels, so that the development of agricultural production has become more regular in recent times). In spite of great efforts, losses in storage and processing have been signficant.

Thus the creation of balance between raw-material production and processing is the most important task of food production. In our days an increase in storage and refrigeration capacity in proper ratio to productive capacity is an especially urgent task. Without it we must expect not only losses in products destroyed and damaged in quality, but also inability to use them because of failure to adjust flexibly to prevailing market requirements. Provision for smooth cooperation between the dynamically growing branches of animal husbandry and the specialized branches based on them is a cause of concern, and we are frequently forced to make use of grains, vegetables, and fruits in other than the most favorable times and ways.

Lack of harmony is obviously in contradiction with our economic interests. In order to eliminate it, important developments during the period of the Fifth Five-Year Plan were justified: enterprise resources have been supplemented with state support, large state investments have been made, credit has been utilized to increase the basis of exports, and the food processing activities of large agricultural operations have been expanded.

In comparison with the period of the Fourth Five-Year Plan, monetary investments in 1976-1980 by the ministry and the councils in the food industry have doubled--calculated at current rates. Especially significant investments are being made in the meat, milk, refrigeration, sugar, and vegetable-oil industries. Investments by the large agricultural operations in the food industry are also increasing significantly.

In spite of considerable development, creation of harmony will require still more effects, in part because we are still far behind (especially in developing storage space), in part because we have had some unfavorable experiences in addition to good results in overall development:

--Some large investments have been delayed beyond their planned time, and they will get into production later.

--Significant expenditures beyond planned amounts are frequent occurrences.

--The efforts of the enterprises are generally directed to moderating shortages in capacity. The scarcity of investment resources (and fear of this!) strengthens that desire even more. Thus projects to improve competitive ability--but not production direct--receive low priority. For this reason we are behind in investments for accessories and for environmental protection.

In spite of strong development, the technological level of the food industry--except for one or two new plants and manufacturing processes--can only be described as average in comparison with the capitalist and socialist countries with developed food industries. It has improved, but agricultural production and processing capacity have not yet been sufficiently harmonized geographically. The locations of both agricultural and food-industry operations can change and adjust to one another. The possibility of adjustment is greater when productive capacity can be converted [from one crop to another]. Convertability is greater in agricultural operations that are not sufficiently specialized and those that grow annual crops; it is less in food-industry enterprises with a narrow profile. Solution of this problem is not easy: harmony at the branch level is not sufficient to improve competitive ability in food production. In order to decrease very substantial transportation costs, we must try to have each economic district (not the same as administrative district!) establish harmony between raw material production and processing.

The Evolution of Human Conditions

Food industry activities employ some 230,000 people. The number has increased in past years--up to 1979--by 1 to 2 percent annually, which was caused by expansion in services, transportation, marketing, and commercial activities, in addition to increased production and starting of operations in new units.

Between 60 and 70 percent of growth in production arises from increases in worker productivity. The year 1979 was the first in which the number of people employed in the food industry did not increase. However, production still exceeded the previous year's level by 3.2 percent. The increase was thus totally attributable to improvement in productivity.

The technological levels of activities in processing are uneven, and the lack of accessories such as loading and moving machines has an even more unfavorable effect on increasing productivity. Working conditions, especially in older operations, are subject to criticism. Heavy, physical labor is being performed in wet of damp environments, and in some branches the number of overtime hours is large. In recent years incomes in the food industry have increased, but the amount by which they lag behind the overall average for industry, 4 to 5 percent, has still not decreased.

Food production needs increasingly better trained experts with more up-to-date knowledge. But keeping present experts and skilled workers, because of the above conditions, often causes problems, which has the consequence that turnover (and this means wasted knowledge!) in the work force is significant. The training of new experts also runs into limitations. Because of the characteristics of the various branches, each branch needs a relatively small number of highly specialized experts, which obviously means a difficult tasks for our instructional system. Appropriate college-level training has begun, but it only goes back a few years. Some of the present specialized engineers received their training in the Soviet Union.

Evolution of Production and Utilization in the Food Industry

The food industry, based on agricultural activity, has in past decades greatly increased production, expanded the variety of products available, and improve their quality and packaging. Beyond satisfying the increasing and differentiated domestic demand for these products, they have made regular exports possible.

The Fifth Five-Year Plan prescribed a 28 to 30 percent increase for the food industry as a whole between 1975 and 1980. Two of the past 4 years were unfavorable for agriculture, and so production in the food industry has fallen somewhat behind schedule. Production in 1979 exceeded that of 1975 by some 20 percent. If the goals for 1980 are met, the prescriptions of the Fifth Five-Year Plan for increases in production can be met approximately.

The results of the first 4 years of the plan period indicate that the increases in production in some specialized branches differ from the planned amounts. Thus, for example, there has been a greater than planned development in the milk, baking, beer, and tobacco industries, whereas in the other industrial branches growth has been at the planned level (vegetable-oil and sugar industries) or below.

Change in the structure of food-industry production has been caused by a wide variety of causes. In some specialized branches (preservation, milling, confectionery industries), for example, development has been hindered by insufficient supply of domestic and imported raw materials; in other specialized branches the rate of growth of production has changed because of market requirements. For example in the meat industry, foreign demand for live animals has decreased the volume of products processed, in the poultry industry considerations of export economics limit production. In other specialized industries again (for example the beer, baking, and pastry industries) the increase in demand by the population and the need to accept more than planned amounts of raw materials (for example in the milk industry) have speeded up development.

Accomplishment of the Tasks of Domestic Supply

In connection with the evolution of production and the retail price regulations that affect larger and smaller areas of food, a structural change in domestic supply has taken place differing from that planned. Consumption of milk and milk products, as well as eggs and beer, has risen faster. On the other hand, increases in consumption of meat, vegetables, fruit, wine, coffee, and sugar have moderated. Overall, domestic supply has been balanced.

Table 2. Evolution of per capita consumption of the most important foods (kilograms per person)

Food	Consumption 1970	1975	1978
Meat	58.1	68.5	71.2
Milk and milk products	109.6	126.6	155.0
Eggs	13.7	15.2	17.4
Fats	27.7	29.1	29.8
Cereals	128.2	122.2	118.5
Potatoes	75.1	66.8	60.5
Vegetables	83.2	85.2	83.1
Fruit	72.5	74.0	79.3
Sugar	33.5	39.4	36.4
Coffee	1.6	2.6	2.6
Wine (liters)	37.7	34.2	22.8
Beer (liters)	59.4	72.3	86.0

Source: Hungarian Statistical Pocketbook, 1979, KSH.

The number of kinds of foods produced by the food industry exceeds 4,000. The variety of foods available has expanded considerably. Especially the milk, preservation, meat, and confectionery industries have brought new items into circulation in recent years. As a result of urbanization, a smaller and smaller share of our nutrition is supplied by consumption of products we have produced ourselves.

Foreign Commerce in Food Products

In Hungary's foreign commerce a very significant role falls to agricultural and food industry products. Their total share in foreign commerce is relatively large, even in relation to other countries with a developed food industry.

Table 3. The role of food in the foreign trade of certain countries (percent)

Country	The share of food in total export	import
Denmark	33.4	9.9
Hungary	22.2	9.8
Netherlands	21.3	14.3
France	15.1	11.4
Yugoslavia	13.1	9.5
Belgium and Luxembourg	9.4	12.2
United Kingdom	6.7	16.6
FRG	4.4	14.4
Austria	4.2	7.8
Czechoslovakia	3.6	10.8

Source: FAO Trade Yearbook. Rome, 1978. Foreign Trade Statistical Yearbook, 1977.

Meat and meat products, grain, and garden products represent the largest volume in our exports. In addition to this, however, foreign currency income is obtained from the sale of so-called "little items" as well (rabbits, pigeons, honey, etc.). In our imports, protein feeds, tropical fruits, coffee, tea, and cocoa represent the largest portion.

In past years the export of processed products in our food exports has increased dynamically. Export of these products exceeded 60 percent of all agricultural and food-industry exports in 1978, whereas in 1975 their share had been only 55 percent. The export-import balance in foods generally and in industrially processed products is positive. (See Table 4.)

The socialist countries represent an important buying market for our food exports. Beyond them, we market significant quantities to countries in Western Europe, North America, and the Near East. As a result of work in studying and expanding the market, a large portion of the increase in exports compared to 1975 has been directed to new markets, mainly Near Eastern countries and North America.

Table 4. Foreign commerce in food products (in billions of forints)

Category	1970	1975	1978
Total exports	13.0	26.9	31.6
Total imports	9.0	18.4	15.1
Balance	3.3	8.5	16.5

Source: MEM STAGEK statistical data.

Expansion of our food market, however, has been connected with new tasks and risks in addition to advantages. The problems are mostly connected with transportation. To accomplish export transportation, lacking appropriate domestic transportation capacity and a stock of specialized vehicles of appropriate technological level, we more and more frequently rent means of transportation from other countries, which results in substantial costs in additional to uncertainty.

The Direction of Development in the Food Industry

The tasks and fundamental goals of the food industry long-range and for the 1980's in particular will not change: the increasingly differentiated domestic requirements must be satisfied, and beyond that the basis for exporting those goods that can be economically exported must be expanded. We must be careful that the composition of products in excess of consumption by the population be as favorable as possible from the point of view of placing them economically on foreign markets.

Especially in the rapidly changing world economic situation of our days, this requires exceptionally careful work. The attainable structure and level of food production in the coming plan period depend in large measure on the evolution of possibilities for sales on foreign markets, resources available for development, improvement of harmony between raw-material production and processing, and creation of conditions for competitive ability.

Evolution of Demand for Food Products

a) Change in domestic demand

Demand on the part of the domestic population for consumption of processed foods can only be projected with some uncertainty. Consumption depends strongly on the evolution of real income and food prices. On the basis of international experience, however, it can be seen as probable that the quantitative increase in food consumption will moderate compared to previous [levels]. This is because, among other things, we are near the point of saturation in consumption of foods.

On the other hand we must prepare for the fact that at the same time as the increase in consumption moderates, the demand for quality and variety in food will increase, and satisfying this demand is also an important task. Business and consumers both expect the widest possible variety of foods that keep well and can be prepared quickly. The proportion of self-supplied foods--with some transitional fluctuations--will decrease, so that demand for centrally supplied goods will increase everywhere. Development must take these points of views into consideration.

An annual increase of between 1 and 1.5 percent in food-industry production will presumably be sufficient to meet the expected domestic demands.

b) The evolution of foreign-market possibilities

The ability of the socialist and capitalist countries that are our potential markets to accept export goods is greater for most products than we could justify from the production side. This, however, is only one necessary condition for sales on foreign markets, and it does not guarantee economical exports. Obviously we are faced with a double task when we attempt to develop our food exports: on the one hand we would like to increase our foreign-currency income, and on the other hand we want to improve export economy.

From this point of view, however, our potential markets are greatly varied. It is no problem to sell food, because demand in the world is greater than supply. But to sell in such a way that we will be repaid for our costs and will be able to buy products needed by our national economy with the money (foreign currency) received, is no small task. Competition in the profitable food markets is getting stronger; we can only maintain our position with high-quality products and successful market work.

According to our present knowledge, we can count on an increase in demand from the socialist countries for our food products.

The ability of the developed capitalist countries of Europe to supply themselves in increasing. In spite of that, this area will represent a buying market for some of our products (vegetable oil and products of animal origin) for a long time to come.

Among the capitalist countries outside of Europe, we can expand export of food mainly to North America, especially with an increase in the share of those products that can withstand the greater transportation costs.

In the developing countries of the Near and Middle East, which have demand and ability to pay, additional social classes will presumably join the group of consumers requiring imported foods, and this will increase our chances for export.

The actual and economic use of market opportunities is a function of many factors: seizing opportunities that open up on foreign markets requires not only additional production, but competitive ability, quality, and significant and fast improvement of market-organizational work.

Taking all of this into account, we can state that it will be possible to sell competitive foods, and their export will influence the foreign trade balance of the country favorably.

The Possible Size and Main Directions of Development in the Food Industry

The size and direction of development in the food industry is determined naturally by other factors in addition to domestic and foreign demand. We must mention here the work-force requirement for expansion of production (which must be in harmony with developmental requirements as regards not only numbers of people, but also composition of skills), the agricultural raw materials available, and the resources for development. All these factors impose ever greater specific burdens.

None of the conditions listed above is expected to guarantee a wide possibility for fast growth in the food industry in coming years. In the case of the necessary work force, qualitative requirements are coming more and more to the fore. Requirements for additional manpower can only appear to a limited degree, even in the case of the introduction of new capacities. In general, we can expect a leveling or even a reduction in the work force. But there will be a growing requirement for experts or for expertise in general. To satisfy this requirement will be a large task for education and training. Keeping the experts on hand, improving working conditions, providing fair wages for work performed, etc., are problems that appear simultaneously in every food-industry plant.

Thus provision of the necessary work force will be a greater task than before, but the possibilities for expansion of food production will be determined fundamentally not by this, but by the possibility of expanding the availability of capacity for storing and processing raw materials.

According to international experience, harmony between food production and production and processing of raw materials is appropriate in a country when the annual rates of growth of agriculture and [food] industry are related to one another in the ratio 1 : 2. The data relating to this from neighboring socialist countries are contained in the following table:

Table 5. Comparison of the growth rate of agriculture and food industry

Country	Average rate of annual growth in 1971-6 (percent) in agriculture	in the food industry	Ratio of rate of growth in agriculture to rate of growth in the food industry
Hungary	4.9	4.7	1 : 0.9
Bulgaria	3.0	5.8	1 : 1.9
Czechoslovakia	2.7	4.7	1 : 1.7
Poland	3.7	8.9	1 : 2.4
GDR	2.7	5.4	1 : 2.0
Romania	6.5	7.5	1 : 1.2

Source. Statistical Yearbook of the Foreign Members of the SEV. Moscow, 1978.

Naturally the characteristics of various countries differ in regard to the weight and internal structure of food production. But even so, we can state that during the first half of the 1970's the rate for growth in raw-material production and processing was not appropriate, mainly because of insufficient processing capacity. During the years 1976-79, the ratio of the average rate of growth of the two main branches was 1.0 : 1.7; thus there has been an improvement in comparison to previous years.

In the first half of the 1980's it is expected that agricultural production will increase at a more moderate rate than during the period of the Fifth Five-Year Plan. According to our knowledge of today agricultural production may grow at an annual rate of between 2 and 2.5 percent during the period of the Sixth Five-Year Plan. More precise values of this will be determined by the possibilities for competitive exports. An annual growth rate of about 1 percent will supply sufficient raw materials to satisfy domestic needs. Beyond this, production can be increased--within the limits of the economic environment--as conditions for economic export of products are created. But this is critically determined by the possibilities for processing and storage. So in the future, processing and storage capacity must be increased in those branches whose products can be exported under favorable conditions. Taking into account development of production and possibilities for export, the average annual rate of growth for the Sixth Five-Year Plan can be set at between 3 and 4 percent. Even the lower limit of the rate of growth computed in this way exceeds the 1 to 1.5 percent needed to satisfy domestic requirements. At least half of the increases can therefore be turned into exports.

A significant part of the funds for development in coming years must be devoted not to expansion of capacity, but to improvement in quality, storage, refrigeration, protection, and packaging of products, improvement of working conditions, and investments for environmental protection. Naturally new capacities must be created, but there will be less possibility than during the Fifth Five-Year Plan. It is essential to emphasize that development of processing and storage is justified not only in the state food industry. There is great need for the agricultural operations and the retail cooperatives to join to a greater degree than before in the processing and storage of their products. The solution whereby processing or storage capacity is established through joint investment of agricultural and food industry enterprises is especially good. This is because in that case cooperation and mutual interests between raw-material production and processing on the part of the participants can be guaranteed.

The requirement of selective development causes differentiated expansion of the various specialized branches of the food industry. The size of development and the number of alternatives to be considered depends mainly on whether the given branch is producing for domestic supply or for export. This is because we regard the increasing needs of the domestic population in quantity and quality as requirements that must be satisfied in any case.

a) Not even the development of those branches which produce mainly for domestic consumption can take place at an equal rate, because requirements for consumption change in differing ways. There is need for relatively fast growth is the manufacture of milk products and soft drinks, as well as in the confectionery industry and further in the beer and alcohol industry (for the latter in the manufacture of industrial alcohol and liquid sugar). But in the sugar, tobacco, milling, and baking industries a more moderate rate of development will be sufficient.

b) Those branches that play an important role in both domestic supply and export must be developed depending on what chances are available for economic placement of their export products. We can be (or can become) competitive both in ruble and nonruble relationships with products of the meat, poultry, vegetable oil, and refrigeration industries. We must pay increasing attention to development in these areas.

This applies particularly to the case of the meat industry, where there is demand for its products on both the socialist and capitalist markets. We must place emphasis in developments on modernization of existing capacity, improvement of technological and sanitary conditions, and solution of transportation probelms. Production of canned meat should increase at a faster than average rate as should (in order to decrease import of protein feeds) the processing of byproducts and meat meal.

Favorable outlooks can be projected long-range also for export of vegetable oils. This makes it justified for the vegetable oil industry to increase its production to a greater degree than any other branch of the food industry. For this it may be necessary to increase its capacity.

A similar dynamic development can be prescribed for the products of the refrigeration industry--most of all quick freezing. For this development raw materials of appropriate quantity, quality, and composition must be provided, the necessary rebuilding must be completed, and new refrigeration plants must be built.

Fast development would also be possible in the poultry industry as well. For this, processing capacity can be created, and enthusiasm on the part of the agricultural operations undertaking the work can be assured. The rate of development will be determined, however, by the export possibilities that will be offered hereafter. Domestic requirements for feed in this branch make necessary an increase in processing of by-products for the manufacture of meat meal.

Exports of the canning industry and the wine industry take place mainly in exchange for rubles. The conditions for wine have been made relatively clear. Strong development of the wine industry can be provided by raising the level of grape production.

Planning of lines of development for the canning industry is a complex task. This is because greater than average growth in this case can only be imagined if we are able to modify our previous export structure to a considerable degree. There is need for production of substantially more ready-cooked foods in order to meet the demands for consumption that are appearing.

The System of Funding for Development of the Food Industry

In order to reach the goals of the Fifth Five-Year Plan--improving financial conditions for food production in the interest of increasing capability of self-financing--a system of regulation was formulated that differs from the general industry regulation system and adjusts to the characteristics of the branches of the food industry. The organization of wholesale prices effected on 1 January 1976 created general conditions for the formation of the necessary developmental funds for planned investments and for achievement of the planned levels of personal income.

Since 1 January 1980 a new system of conditions has been in effect for the food industry. Solutions differing from the requirements of the general (normative) requirements of regulation were discontinued. Success in the various specialized branches depends to a large degree on how we are able to improve organization of the work and efficiency of operation. It is certain that even if work efficiency is improved as much as possible, the ability of the food industry to finance itself will decrease and developmental funds will be less available as a result. This in turn will critically hinder rebuilding from enterprise funds.

This scarcity of development funds is not, however, the only difficulty in investment practice. Increasing the export-orientation of food production, improvement of competitive ability, and flexible adjustment to varying market relationships require machines, equipment, and various materials--collectively called background industrial activity--much of which cannot be supplied by domestic industry. The weight of the food industry in the national economy and the requirements for improving balance demand that the machinery and chemical industries in particular, but also light industry, devote more attention to satisfying the demands of the food industry, which represents a continual buying market.

An increase in independence of the enterprises is required in order to improve efficiency, increase fulfillment of plans, and make better use of reserves. Most of that part of the food industry under direct supervision of the ministry is organized into trusts, and a smaller part into large enterprises with multisite operations. In earlier years this form of organization was successful; that is demonstrated by the significant development of the food industry. However, the new requirements can be met by the enterprises only through more economic independence than before. For this reason, the internal accounting systems of the trusts must be appropriately modified.

An increase in economic independence by the trust enterprises can mean a considerable step forward in mobilization of reserves and in making the connections between raw-material producers and commercial enterprises more productive. All this is an indispensable condition in order for our food industry to be internationally competitive and for domestic needs to be satisfied at a high level.

It is necessary for production in the food industry to be expanded enough to meet increasing domestic requirements; it is advantageous in the interest of improving our balance of payments situation to expand even further. For that we need more differentiated development of agricultural production and a more efficient utilization of energy resources in processing, and for this we need a better foundation for background industry. As these development are realized, further improvement transportation and business work will be needed. Food production is one good characteristic of the Hungarian economy. Exploitation of this characteristic is a great task for workers in agriculture and the food industry first of all, but recognition of this characteristic throughout the whole society and harmonious, purposeful activity among the various units of our economy are necessary for it to be realized.

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FOOD INDUSTRY RELATED ACTIVITIES OF FARMS NOTED

Budapest FIGYELO in Hungarian 27 Aug 80 p 13

[Article by D. Tamas Horvath: "Food Industry at the Producer Cooperatives"]

[Text] Most of the active small plants in Hungary are working in subsidary operations of producer cooperatives. It is striking, however, that these small plants are industrial in nature and are engaged in food processing to a lesser extent than could be desired. The generally cited reason is the low profitability of food processing.

A counterexample to this is provided by the Szilasmenti Producer Cooperative in Kerepestarcsa, which has been profitably engaged in processing agricultural produce for nearly a decade. The Szilasmenti Producer Cooperative farms approximately 6,000 hectares, but it is low quality land valued at an average of 13.5 gold crowns per hectare.

That they have been successful is proved by their 1979 per-worker result of 30,000 forints for all producer cooperatives. However, 24 percent, approximately 175 million forints of last year's total sales receipts, were from the food, medicinal-plant and essential-oil processing plants.

From Dried Vegetables to Seasonings

Food processing began in 1971 with the production of dried vegetables. The sphere of activity grew gradually. They combined dried products into seasonings, and also began to produce pickled products. The cooperative's bakery and pastry plant came into being, and fish processing also commenced. The expansion of the sphere of their activities was accompanied by an increase in the food-processing plant's sales receipts from the initial figure of 9 million forints in 1971, to 54 million in 1975, and 85 million in 1979. This income from sales was reached with the employment of 100 persons in the subsidiary operation.

The plant manufactured about 20 different types of products last year and exported 20 percent of its production through Hungarofruct. Small-scale food plants similar to that of the Szilasmenti Producer Cooperative's subsidiary production line have two advantages: rapid market response and comparatively low capital intensiveness. A good example of both of these is the rum cherries the cooperative makes for the candy industry, the newest product of the cooperative's food-processing plant. Due to the strained capacity of the candy industry a manufacturer was being sought for the popular confection, and the Szilasmenti Cooperative was discovered. Within a short time, using existing machinery and equipment costing approximately 150,000 forints they had turned out 10 million forints' worth of rum cherries. And the result of this one-time deal in cooperation will most likely be a long-term contract.

Where They Were Trailblazers

The production and processing of medicinal plants also began in the early 1970's. This production line also employed 100 persons, but its sales receipts in 1979 were nearly 90 million forints. At present it manufactures approximately 300 different products, some of which is for direct consumption and some of which goes for medical purposes and cosmetics. Last year it exported approximately half of the plant's output through Medimpex. Its best customers are the FRG and France.

In the beginning it processed only medicinal plants raised on the cooperative's land, but since 1975 it has had contracts with other cooperatives as well. Last year medicinal plants were raised on 1,500 hectares at the cooperative, and in addition, nearly 1,000 hectares' worth was raised by other farms. Their most important partners were the cooperatives in Pelpuszta and Fot, which raised medicinal plants on 400 and 300 hectares, respectively, for the Szilasmenti Cooperative's processing plant.

From the economic standpoint what is most important is that in both the production lines mentioned in this article the enterprise result per worker is higher than the characteristic indicator for the Szilasmenti Cooperative as a whole; this, however, is considerably better than the national average for cooperatives. To this we must also add that the amount of capital per capita is less than the characteristic 132,000 forints of the cooperative as a whole, while this itself is barely 40 percent of the 346,000 national average for cooperatives.

What is the explanation for such a good result being obtained with such a small amount of capital? In the first place, the cooperative watches the market and is able to respond to it rapidly. The cooperative is able to manufacture seven or eight different products from a plant and it always tries to make the one commanding the highest price. It buys only equipment that has multiple uses. Cost factors are systematically analyzed and the cheapest solution is sought. For instance, right now, because of rising energy costs, the cooperative is experimenting with heating air by using the cooling water warmed by the drying furnaces, which has to be cooled in any case, and then using this warmed air for drying too. As another possibility for reducing losses, the cooperative is also testing the use of the plant fiber waste from the manufacture of flavorings as an addition to silage.

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HUNGARY DEVELOPING AS PRODUCER OF MEAT

Budapest FIGYELO in Hungarian 27 Aug 80 p 13

[Article by Marton Lovas: "The Development of Meat Production"]

[Text] Nowadays there is hardly an economically developed country without an industrialized developed agriculture. Hungary's greatest natural treasure is its arable land. Before 1940 we produced an annual 6 million tons of grain on 4.1 million hectares of arable land. Thirty-five years later, between 1975 and 1978, Hungary produced 12 million tons of grain on less area (3.8 million hectares.

One of the important indicators in agriculture is the per capita production of meat, because in the developed countries of Europe expanded grain production is not increasing but rather decreasing the consumption of cereals (types of flour).

Among the Leaders

The trend in meat production and consumption is thus a good indication not only of a major component of agricultural development but of the standard of living as well. The following data show the production of meat since World War II.

Table 1. Per Capita Meat Production (in Kilograms)

	1965	1970	1975	1978	1978/1965 (%)
CEMA countries	49	56	68	70	142.8
Common Market countries	60	68	74	77	128.3
Hungary	92	101	135	143	155.4

From the table we can see that Hungary is one of the greatest meat producers, per capita, in Europe.

We produce more meat than we consume; in other words, a significant proportion of the meat we produce is exported, in addition to completely satisfying domestic requirements. Hungarian meat production is the most important source of Hungarian exports.

In 1960 we produced a total of 1 million tons of meat in Hungary; in 1978 and 1979 we produced 2 million tons annually.

Until 1970, Denmark led Europe in per capita meat production (216 kilograms), Holland was in second place (108 kilograms), and Hungary was third (101 kilograms). In the early 1970's Hungary rose to second place, while Holland, even though it had increased its production (128 kilograms per capita) fell to third place, because meat production in our country was 143 kilograms per capita, with per capita meat consumption rising to 73 kilograms. In addition we exported 24 million forints' worth of livestock and meat.

Our Own Fodder

Hungary differs essentially from the small, developed meat-producing countries of Western Europe. The difference is that while the West Europeans produce meat using feed imported from abroad, from America, almost as paid laborers, we here in Hungary can produce it using our own feed resources.

It is thus a historical truth that Hungary, at the beginning of the 1980's, has developed into a meat-producing country.

Hungary cannot exist without materials and equipment produced by other countries, and we obtain these materials and equipment from the world market by selling the goods we produce. Progress means that we must import even more in the future.

The important question for the present and the near future is what the Hungarian national economy can and should produce for export in the future in great quantities in order to be able to import what we need.

The basic requirement is economic efficiency, that the cost of producing the goods be elss than the selling price. This is an essential condition for every export.

The future is promising for export production. Producing such products strengthens not only one branch of the economy but the development of the whole Hungarian national economy, as it has done in the preceding decades.

Between 1960 and 1980 we increased the country's meat production from 1 million to 2 million tons, but we have not yet drawn a lesson from this experience.

According to this experience, we should expand the country's production of protein sources. Grass raising should be continued on large areas at the expense of pasturing, and the protein produced should be preserved by using already known (and, in part, applied) technological procedures. The production of grain feeds can be further expanded in the coming decades; the further improvement in and the more favorable combination of the characteristics of animal breeds and the further expansion of meat production are a great reserve.

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PUBLIC FOOD SERVICE ENTERPRISES MOVE TOWARD SELF-SUPPLY

Bucharest REVISTA ECONOMICA in Romanian 29 Aug 80 pp 8-9

/Article by I. Paunescu, Academy of Economic Studies: "Better Utilization of Internal Resources in Public Food Service"/

/Text/ Public food service, an important branch of domestic trade, has achieved remarkable results both on an economic plane and on a social plane. Thus, in 1978 as compared with 1960, the network of units grew about 104 percent (including the network of restaurants about 277 percent), the volume of sales about 412 percent and so on. One should also note the fact that the percentage of culinary production and other food products in the total sales through public food service units came to over 57 percent on the average. The average sales per unit grew over 2.5-fold in this period, from 684,000 to 1,722,000 lei per year. The percentage of sales through public food service units in the total sales through socialist trade rose from 14.8 percent to 16.3 percent.

The development of public food service is reflected positively in the level of satisfaction of the population's needs. While there were 2,135 inhabitants per public food service unit on the average in 1960, the number fell to 1,245 in 1978. The average consumption per capita rose from 320 to 1,383 lei.

In prospect for 1985, targets that surpass the average growth of socialist trade (the growth of sales by 30-35 percent in comparison with 1980) devolve upon public food service. Thus, the Directive Program for Increasing the Standard of Living in the 1981-1985 Period and Raising the Quality of Life provides that the volume of sales through public food service is to grow 36.1 percent and, within them, prepared and partly prepared foods are to grow over 50 percent. A significant increase in the sales of prepared and partly prepared foods requires a qualitative diversification in accordance with the structure of the population's demand, with the providing of a consumption established on the basis of scientific criteria.

The fulfillment of such an essential requirement helps to ease work in the domestic economy, to raise the quality of life.

The transition to a new quality in public food service puts in the forefront the optimization of the structure of sales, as a result of the constant growth of the production of prepared foods and other food products, but especially of kitchen products. The attainment of this major objective requires the utilization of all existing resources, the elimination of any waste that would affect the growth of profit, the raising of the degree of satisfaction of the demand of the consumers.

The organization of annex-farms for raising hogs and poultry represents a main way to increase the volume of culinary production. The main food for these animals can be provided through the efficient utilization of kitchen scraps. This requirement fits organically into the task contained in the documents of the 12th party congress with regard to the complete recovery and reuse of raw materials and supplies. In the speech at the work conference of the RCP Central Committee in February 1980, Comrade Nicolae Ceausescu, secretary general of the party, stated that "...it is necessary to proceed to organize the raising of poultry and hogs near the commissaries, which have big quantities of food scraps." Consequently, decisive steps are required from all the decisionmaking factors in public food service, in order to put an end to waste of food, including that which can be recovered and reused to raise hogs and poultry, for increasing and improving the production of prepared and partly prepared foods.

The implementation of such an important task unleashed a vast program of actions, meant to amplify considerably the achievements already obtained. Thus, at the end of 1979, there were about 1,800 annex-farms, with about 44,000 hogs and 23,000 poultry, within public food service. It follows that there were 45 annex-farms per county on the average. However, the existing possibilities permit, through sensible utilization, the obtaining of better results by each public food service enterprise.

The steps taken by the Ministry of Domestic Trade [MCI] for 1980 constitute the most graphic proof in this regard. At the level of this year, within the MCI, the organization of 363 new annex-farms and -sections, that is, an average of about 9 units per county, has been planned. In comparison with the achievements up to the end of 1979, for all public food service, the planned growth represents about 20.17 percent. Regarding the number of hogs and poultry that are to be raised on annex-farms, the plan targets for 1980 are 0.41 percent and 269.59 percent higher, respectively, than the achievements obtained in 1979. The average per county is about 1,105 hogs and 2,125 poultry. (In some countries, such as Bacau and Bistrita-Nasaud, the raising of other meat animals is also planned.)

The distribution of annex-farms according to counties shows big variations. Between 1 and 10 annex-farms operate in 29 counties (72.5 percent of the total) and between 11 and 36 in the other 10 and in the capital (27.5 percent). In the category of counties with a higher number of annex-farms are: Arges, 36; Prahova, 25; Sibiu, 21; Constnata, 18; Dolj, 16; and so on, and the municipality of Bucharest, 25. Among those with a lower number are: Bistrita-Nasaud, one; Vrancea, Galati and Salaj, two each; Gorj and Iasi, three each; Botosani, Caras-Severin, Harghita, Ialomita and Timis, four each; and so on. In view of the strong development of public food service in all the counties, it seems difficult to explain significant differences noted between Arges, Prahova, Sibiu and Constanta, on the one hand, and Galati, Gorj, Iasi and Timis, on the other hand, the latter being far below the possibilities that they possess. Moreover, the differences seem even more visible from the viewpoint of the number of hogs and poultry that will be raised on annex-farms. For example, 800 hogs and 10,000 poultry in Arges and 1,150 hogs and 1,950 poultry in Prahova, as compared with 200 hogs and 2,500 poultry in Galati and 250 hogs and no poultry in Timis. With the social and economic conditions being approximately similar, this means that it is a question of unequal concern for the utilization of kitchen scraps by annex-farms. One should also note the fact that a number of counties--Brasov, Buzau, Constanta, Dimbovita, Dolj, Harghita, Ialomita, Iasi, Salaj, Teleorman, Timis, Tulcea, Vilcea and so on--have not planned for this year the raising of poultry on annex-farms, although this does not require measures far different from those for raising hogs, and the meat obtained fits into the category of foods with a high nutritive value.

Not only the number of annex-farms but also their dimensions, with which efficiency in operation is closely connected, are important. The plan targets for 1980 in the following counties are illustrative in this regard: Hunedoara (where on the 5 annex-farms the raising of 4,270 hogs and 4,300 poultry, equivalent to 420 tons of meat, is planned), Covasna (6 farms, 3,450 hogs, 20,000 poultry, 186 tons of meat), Neamt (11 farms, 2,150 hogs, 6,000 poultry, 224 tons of meant) and Mures (9 farms, 1,522 hogs, 400 poultry, 104 tons of meat).

The most revealing indicator that reflects the manner of utilization of kitchen scraps by annex-farms is meat production in physical terms. According to the plan targets for 1980, 2,046 tons of meat, amounting to about 51 tons per county on the average, will be obtained by the annex-farms within the MCI. Ten counties are above this average. In some counties the planned meat production is far below the average: Arad, 0.5 tons; Galati, 6 tons; Iasi, 6.9 tons; Sibiu, 3.7 tons; Tulcea, 4 tons; and Vilcea, 4.1 tons. These small quantities illustrate the insufficient utilization of kitchen scraps in comparison with other counties with an approximately equal potential: Arges, 83 tons; Ilfov, 86 tons; Prahova, 58.8 tons; Suceava, 103 tons; and so on.

The raising of poultry by annex-farms can also provide a significant production of eggs, but this is planned in only 2 counties: Prahova (15,000) and Satu Mare (1,000), which nonetheless have a relatively small number of poultry--3,600 and 500, respectively. The situation in other counties, with a higher number of poultry, which have set no target for egg production, seems all the more peculiar: Arges (10,000 poultry), Braila (5,000), Neamt (6,000), Vrancea (10,000) and the municipality of Bucharest (18,000 poultry). However, it is known that eggs--with a high nutritive value--can be used in the preparation of a wide assortment of dishes, partly prepared foods and pastry products.

The efficient functioning of the annex-farms and -sections of the public food service enterprises in the MCI system presupposes the cultivation of areas with vegetables, potatoes and greens needed to prepare the dishes, as well as fodder for animals. In 1980, 1,529,560 square meters, with an average of 38,239 square meters per county, have been planned. In 16 counties (Arad, Bistrita-Nasaud, Braila, Constanta, Dimbovita, Hunedoara, Ialomita, Iasi, Maramures, Neamt, Prahova, Salaj, Sibiu, Timis, Tulcea and Vilcea), not a square meter of crops connected with the annex-farms has been planned!

Among the counties where such crops are planned, one notes big differences regarding the area cultivated--from 400 square meters in Botosani County to 150,000 square meters in Galati County. The counties with an area earmarked for crops of vegetables, potatoes, greens and fodder of up to 5,000 square meters are Brasov (3,500 square meters), Buzau (3,880 square meters meters), Caras-Severin (1,200 square meters), Covasna (600 square meters), Gorj (2,800 square meters), Ilfov (1,450 square meters) and Teleorman (1,700 square meters). The municipality of Bucharest has the biggest area earmarked for the above-mentioned crops--1.05 million square meters, that is, about 68 percent of the total area cultivated by annex-farms.

The orientation adopted in the crop structure from one county to another seems significant. Thus, crops of vegetables are planned in 19 counties (47.5 percent), potatoes in 11 counties (27.5 percent), greens in 10 counties (25 percent) and fodder in 4 counties (10 percent). It is interesting to note the fact that crops are not planned in some counties with favorable soil and climatic conditions (vegetables in Arad, Arges, Botosani, Braila, Constanta, Dimbovita, Ialomita, Iasi, Satu Mare, Sibiu and Tulcea; potatoes in Alba, Bistrita-Nasaud, Cluj, Dimbovita, Gorj, Hunedoara, Maramures, Neamt, Salaj, Sibiu and so on; greens in Arad, Braila, Buzau, Constanta, Dolj, Galati, Teleorman, Tulcea and so on; and fodder in Bacau, Bihor, Covasna, Harghita, Maramures, Mures, Neamt, Salaj, Sibiu, Suceava, Vilcea and so on).

The structure of the total area proposed for crops is as follows: vegetables, 59.07 percent; potatoes, 21.17 percent; greens, 15.28 percent; and fodder, 4.48 percent. The optimization of the crop structure in each county, in relation to the actual potential, seems necessary.

In the spirit of the instructions contained in Comrade Nicolae Ceausescu's speech at the Conference With the Actives and the Basic Personnel in the Consumer Cooperative System, the Artisan Cooperative System, the Agricultural Production Cooperative System and the People's Councils, in June 1980, one sees clearly the necessity of utilizing recoverable raw materials and supplies to a greater extent, the strengthening of order and discipline in performing this priority action. The above-mentioned aspects suggest, besides the achievements obtained, the existence of wide possibilities of utilization of resources scattered widely over the country's territory, through the raising of hogs and poultry on annex-farms, using the kitchen scraps from public food service.

According to estimates made by the Study and Design Institute for Systematisation, Housing and Communal Administration, it follows that just at the level of the country's cities about 300,000 tons of food for animals per year could be obtained through the utilization of kitchen scraps. With a quantity of about 1,800 kg of kitchen scraps per year on the average being needed for feeding 1 hog, it follows that about 167,000 hogs could be raised. Also taking into calculation the reusable kitchen scraps from public food service units in rural areas, the figure would reach about 200,000 hogs. However, considering that a part of these resources will be used to raise poultry on annex-farms, up to 150,000 hogs per year, with a meat production of approximately 12,000 tons, at a cost of about 10 lei per kg, is estimated as a feasible level. In this variant, 3,750 hogs, equivalent to 300 tons, could be raised on the average in each county--which would provide an increase in meat production for improving the population's consumption without resorting to the market supply.

In order to attain this extremely important objective--the raising of hogs and poultry on annex-farms--decisive steps must be taken on the various hierarchical levels of the sector of public food service.

First, it is necessary to promote an attitude of high responsibility, to develop initiative, to firmly eliminate any waste of reusable raw materials and supplies in public food service.

Another important step consists of extending and generalizing the positive experience. In this regard, it is possible to point to the experience of the ICSAP [expansion unknown] in Drobeta-Turnu Severin, which, with a small volume of investments, organized annex-farms, with a large number of animals, complying with the requirements for environmental protection.

It being a question of raising a relatively large number of hogs and poultry on annex-farms, the providing of specialized assistance is necessary, eventually by a veterinarian with higher training and a suitable number of personnel with middle training at the level of each county trade directorate, depending on the number and the volume of annex-farms.

The stimulation of the working people on annex-farms for an activity with high economic efficiency presupposes a suitable system of incentives, so that their earnings rise in accordance with the increase in the number of animals and the meat production.

The sensible organization of the collection and transportation of kitchen scraps from public food service units, using suitably equipped means of transportation, is indispensable for the proper functioning of the annex-farms.

A minimum of facilities is also necessary for the functioning of the annex-farms throughout the year so that the meat production is achieved regardless of the climatic conditions.

YUGOSLAVIA

BRIEFS

REDUCED STEEL PRODUCTION--It is estimated by members of the executive council of the General Ferrous Metallurgical Association of Yugoslavia that production will be lower this year compared both to the plan and to last year's results, and that the economic position of steel producers is worsening. Lack of foreign exchange will make difficult a supply of raw materials and spare parts, thus lowering production results in ferrous metallurgy at the end of the year compared to the first half of the year. Because of supply problems, 512,000 tons of finished steel products was "lost" in the first half of the year, as well as a significant quantity of other ferrous metallurgical products. This has worsened the supply for steel consumers and increased pressure to import ferrous metallurgical items which are in short supply. Steel producers warn that if the problems of foreign exchange and of imported raw materials is not resolved, there will be a marked deviation in production in the first quarter of 1981, as well as increased difficulties in supplying domestic consumers with finished ferrous metallurgical products. [Text] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 8 Oct 80 p 12]

REDUCED HEAT IN BELGRADE--The heating season and length of daily heating time in Belgrade will probably be shortened this winter. A proposal will soon be before the Belgrade Assembly council to limit heat during the day from 0600 to 2100 hours (instead of 2200 hours as up to now), and on Sunday from 0700 to 2100 hours. The season would last from 15 October to 15 April. These measures would save 32,450 tons of mazut. [Excerpt] [Belgrade BORBA in Serbo-Croatian 7 Oct 80 p 14]

FOREIGN INVESTMENT--Data regarding investment by foreign partners in Yugoslav enterprises shows that this form of cooperation has not attained the dimensions suitable to the needs and ambitions of the international division of labor. In the last 12 years 205 agreements have been signed on such forms of cooperation in the Federal Committee for Energy and Industry; this is very modest. One-half of all the funds involved fall within 14 agreements. The proportion of domestic and foreign funds in these business deals is 75:25. Last year 17 new contracts were signed with a total value of 8 billion dinars, and with contributions of foreign partners amounting to 2.2 billion dinars, or 28 percent. This whole area needs to be examined comprehensively in order to discern with greater certainty the effects of the new legal regulations. One assessment shows that the purpose of the agreements has not been attained. The Yugoslav side must put more effort into the entire matter, especially in explaining the conditions under which these deals can be arranged. One gets the impression that the conditions are not sufficiently known to foreign partners. It is, nevertheless, felt that certain legal prescriptions need to be tested in order to learn whether some are an obstacle to contacts and cooperation. In analyzing the results of 53 contracts, it is seen that the foreign partners received a modest profit of 255 million dinars, 74 million dinars of which (or 29 percent) was reinvested. This shows the insufficient interest of owners of foreign capital to expand cooperation. In 9 contracts there was a loss of 377 million dinars, and in some agreements business operation remained on the border of profitability. It is obvious that modest [low] profit is one of the reasons for the lack of interest among foreign partners to invest and to expand such cooperation. In some ventures investments have been very small, ranging from 1 million to 30 million dinars (this applies to 140 contracts). [Excerpt] [Zagreb VJESNIK in Serbo-Croatian 3 Oct 80 p 1]

LABOR ACCIDENT AT KRSKO--The official report on the accident at the construction site of our first nuclear electric power plant at Krsko which occurred on 3 September this year says: the accident was caused by unprofessional work done while testing the pressure in a water pipe to be used in fire-fighting equipment. One worker, Josip Tomic (20 years old) from Slavonski Brod, was killed, and another worker, Adam Begonja (19 years old) from Sremski Samac, was seriously injured. [Excerpt] [Zagreb VJESNIK in Serbo-Croatian 9 Sep 80 p 12]

NON-ECONOMIC INVESTMENTS--Yugoslavia is among the countries with the highest proportion of investments in the social product--more than 40 percent. The total value of investments at the end of last year amounted to 1,043,000,000 dinars which is more than the annual social product for the socialized sector of the economy (the social product amounted to 1,036,000,000 dinars in 1979). The great fragmentation of investments is seen in the fact that 520 billion dinars, or one-half the value of all investments fall within 300 large projects. The other half is distributed among about 30,000 small ventures (data as of the end of 1979). In the last 4 years funds for reproduction amounted to 545 billion dinars, or 458 billion dinars after subtracting payments for foreign credits, while total payments for investments amounted to 996 billion dinars. When payments on domestic credits are subtracted, one sees that OURs (organizations of associated work) in the economy invested 343 billion dinars of their own funds, or only 34 percent of total investment payments. In the last 4 years the real increase in economic investments was faster than planned (10 percent instead of 8.5 percent as planned), but the increase in investments outside the economy was also faster than planned (8 percent instead of the planned 7.5 percent). [Excerpt] [Zagreb SEDAM DANA (supplement to VJESNIK) 4 Oct 80 p 7]

LAG IN MACHINE INDUSTRY--According to data used by researchers in the Institute for Industrial Economy, our country pays more for importing equipment than for importing oil. And economic and technological lagging in domestic machinebuilding is said to be a greater danger than the lack of domestic energy resources. Last year 32.2 billion dinars (19 dinars to 1 US dollar) was spent for oil imports and 76 billion dinars for machinery (electric and other) imports. At the same time, exports of machinebuilding products is considerably less than imports. Last year 53 billion dinars were spent to import machinebuilding products (not including products of the electric machinebuilding industry), while somewhat less than 11 billion dinars worth of domestic equipment was exported. The negative balance of 42 billion dinars is incomparably more than the imbalance which would be unavoidable considering the technological inferiority of the domestic machinebuilding industry, professionals say, estimating that the domestic machinebuilding industry can produce 70 to 75 percent of the equipment needed to build new production facilities for our economy; under present conditions only about 60 percent of this equipment is being produced. It is certain that part of the reason for unused possibilities in machinebuilding can be found in the realm of business organization and economic and developmental policy. The Institute's analysis leaves this to one side and points to lagging in the entire metals complex (including machinebuilding) in regard to investment. It points out that intensity of investment in this industry is less than the overall industrial average. It is also more difficult for the metals industry to obtain credits than it is for other branches of industry which are officially considered priority branches. Lagging in the metals processing industry is thought dangerous because experts say that, characteristically, the metals complex develops faster than average for countries which proclaim rapid industrial development. The rate of growth for the metals industry in the last 10 years has been only 1.07 [percent]. [Excerpt] [Belgrade EKONOMSKA POLITIKA in Serbo-Croatian 29 Sep 80 pp 39-40]

KOSOVO FOREIGN TRADE--Despite the complex economic situation, Kosovo foreign trade is considerably better than last year. Up to September 15 this year the province exported 3.66 billion dinars worth of goods, or 35 percent more than last year. But the unfavorable structure of the economy, i.e., the construction of a number of capital investment projects necessitated imports of equipment and producer goods which was unfavorably reflected in trade. Thus, in this period Kosovo imported 8.34 billion dinars worth of goods from the convertible currency area, or 26 percent more than last year. This area holds a priority position in Kosovo trade, with the value of trade being 8.77 billion dinars with the developed countries of the West during this period, or 22 percent more than during the same 1979 period. The value of trade with the East European countries amounted to 3.23 billion dinars, or 49 percent more than last year. It is a positive feature that exports of products from Kosovo to the convertible currency area continue to grow faster than imports; deliveries to buyers in the West were 29 percent above that of last year. Imports from the clearing-account area rose 63 percent, and exports 41 percent, compared to the same 1979 period. With increased efforts, it is thought that the province can meet the balance-of-payments plan for 1980. [Excerpts] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 14 Oct 80 p 3]

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